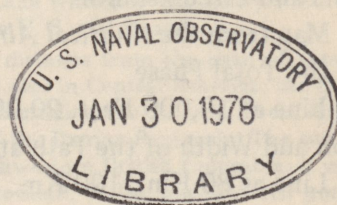


C I R C U L A R N O. 1 5 7

December 5, 1977



TOTAL SOLAR ECLIPSE OF 26 FEBRUARY 1979

by

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and

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TOTAL SOLAR ECLIPSE OF 26 FEBRUARY 1979

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GENERAL INFORMATION

PATH AND VISIBILITY. At approximately 1609 UT on 26 February 1979, the center of the umbra of the Moon will touch the Earth at sunrise in the northeast Pacific Ocean west of the state of Washington, beginning the path of total phase. Traveling east and a little south, the center of the path will reach the coast of North America just south of the mouth of the Columbia River at 1614 UT, little more than an hour after sunrise. There the path will be about 170 miles wide. Moving east and then northeast, in less than one hour the path will have crossed southern Washington, northern Oregon, the northern half of Idaho except the tip, all of Montana except the extreme southwestern portion and the northwest and southeast corners, northwestern North Dakota, the southeastern tip of Saskatchewan, southern Manitoba, and extreme western Ontario. At 1706 UT the path will start to cross Hudson Bay, then continue across the northern tip of Quebec, Baffin Island, Davis Strait, and end at sunset in the interior of Greenland, at approximately 1739 UT. Maximum duration in excess of 2^m52^s will occur immediately east of Lake Winnipeg; maximum path width of about 195 miles will be attained just south of the border between the U. S. and Canada.

Partial phases of the eclipse, of magnitude decreasing with the distance from the path of total phase, will be visible over all of North America except western Alaska, and also in Central America, the Caribbean Sea, southern Greenland, the northwestern North Atlantic Ocean, including the Azores, Great Britain except extreme eastern England, the Brittany Peninsula, and the tip of the Iberian Peninsula. The sun will rise in partial eclipse for eastern Alaska, the Yukon Territory, and northwestern British Columbia; it will set in partial eclipse for central Greenland, Iceland, Portugal, Ireland, Scotland, Wales, and western portions of England, France, and Spain.

PARAMETERS AND CORRECTIONS. The predictions in this *Circular* are derived from the basic data in the *American Ephemeris and Nautical Almanac for the Year 1979*. The arguments here are in Universal Time, $\Delta T = +50^s.03$. To refer the $j = 2$ lunar ephemeris to the FK4 equinox, a correction $-1^s.34$ was applied to ΔT for the interpolation of the Moon's coordinates. A correction of $-0''.6$ has been applied to the tabular latitude of the Moon by applying $+0^s.015$ to right ascension, $-0''.56$ to declination. The ratio of the Moon's radius to the Earth's equatorial radius is taken to be $k = 0.2724880$, except for calculations of duration on the central line at various altitudes, where the value 0.272281 has been used by way of applying an approximate correction for the irregularities of the lunar limb.

To convert Universal Time to selected Standard Time Zones, apply the following correction:

Alaska—Hawaii	UT — 10 hours	Mountain	UT — 7 hours	Atlantic	UT — 4 hours
Yukon	UT — 9 hours	Central	UT — 6 hours	Newfoundland	UT — 3½ hours
Pacific	UT — 8 hours	Eastern	UT — 5 hours		

LOCAL CIRCUMSTANCES. Following are some notes and explanations of tabular quantities.

Longitudes west of Greenwich are positive. Time arguments are Universal Time.

First and fourth contacts are respectively the beginning and end of the partial phase. Second and third contacts are respectively the beginning and end of total phase, if any. Duration is the time interval between second and third contacts. Dot leaders indicate a phenomenon is below the horizon for that position.

The *position angle* of a point of contact on the solar limb is P , measured eastward (counterclockwise) from the north point of the solar limb; or V , measured eastward from the vertex of the solar limb.

Azimuth of the Sun is measured from the north point of the horizon through the east.

The *magnitude* of the eclipse is by definition the fraction of the apparent diameter of the solar disk covered by the Moon at the time of greatest phase, expressed in units of the solar diameter. For partial phase at maximum eclipse, the magnitude is less than 1. For total phase at maximum eclipse, the magnitude is the diameter of the Moon's disk in units of the solar diameter. Degree of *obscuration*, which has been prepared especially for this *Circular*, is the fraction (percent) of the area of the apparent solar disk obscured by the Moon at maximum eclipse. For a few points near the edge of the path of totality, rounding and neglect of altitude indicates total obscuration for points predicted to be outside the path. *Inexperienced observers are cautioned that at anything less than total obscuration, even 99%, the Sun should not be observed directly without safe filters.*

The Path of the Total Phase, the path plotted on the detail maps, and Local Circumstances for Points on the Central Line are calculated for mean sea level. Much of the path is over terrain having an altitude of several hundred feet, which can introduce changes of a second or two in the times for a given point or tenths of a minute in the predicted limits of the path.

Local circumstances for a large number of selected places, mostly in North America, are tabulated by state, province, or other country. For places in or near the path of total phase, coordinates and altitudes are from the *Times Atlas of the World*, 1967, or from maps. For major North American cities, coordinates and altitudes are from National Ocean Survey (NOAA). For observatories, coordinates and altitudes are from the records of the Nautical Almanac Office (NAO). As many observatories as possible are included. If a city on the NOAA list also had an observatory on the NAO list, the observatory only is given here.

Approximate local circumstances for places not listed may be obtained as follows:

A. Compare local circumstances for several nearby places which are in the list. Over a large metropolitan area, times of contact vary only a few seconds from those given for a specific point within the area. If the position is in the path of totality, consult the appropriate detail map, times listed for nearby towns on the map, and the table of Local Circumstances for the Central Line.

B. Use the eclipse map facing the table of Path of Total Phase. On this map, taken from the *Nautical Almanac*, the curves drawn in long dashes indicate the times midway between first and last contacts of the penumbra; these times of the middle of the eclipse should not be confused with the times of maximum eclipse, from which they may differ by several minutes. The curves drawn in short dashes give the semi-duration of the partial phase. The times of the first and fourth contacts to the nearest minute are derived from the time of the middle of the eclipse by respectively subtracting and adding the semi-duration, then subtracting 1 minute by way of approximate correction to Universal Time. The curves are extended across the rising and setting limits of the eclipse, although part of the eclipse occurs below the horizon for observers in those regions (the large "teardrops" at the extreme east and west of the limit curves).

Example: Estimate times of first and last contacts for Denver. The point lies between the mid-eclipse curves for 1620 GMT and 1630 GMT, and between semi-duration curves of 70 and 75 minutes. The estimated time of middle of eclipse is 1628 GMT, semi-duration of 74 minutes. Subtracting 74 minutes from 1628 GMT gives 1514 GMT for the first contact, which we correct to 1513 UT. Adding 74 minutes to 1628 GMT gives 1742 GMT as the time of last contact, which we correct to 1741 UT. By comparison, the tabulated times, which include corrections for altitude, are 1513 UT and 1740 UT.

MAPS OF THE PATH OF TOTALITY. The path of total phase over land was plotted by the Nautical Almanac Office staff. The first ten pages, covering the path from the west coast of North America to Western Ontario, are portions of the International Map of the World (1:1,000,000), modified polyconic projection. These maps were supplied courtesy of the U. S. Geological Survey, Department of the Interior, Arlington, Virginia, and the Canada Map Office, Department of Energy, Mines, and Resources, Ottawa. The map numbers and their dates of compilation are: (U. S.) NL10 (1945), NL11 (1955), NL12 (1954), NL13 (1954), NL14 (1953); (Canada) NM12 (1970), NM13 (1967), NM14 (1967), NM15 (1967), NN14 (1969), NN15 (1969). Each map shows four degrees of latitude, six degrees of longitude. The NL series is bounded on the south by latitude parallel N44, the NM series by N48, the NN series by N52. NL10 is bounded on the west by longitude meridian W126, NM12 by W114, and NN14 by W102. U. S. Interstate highways are not shown on these maps.

The remaining five pages of maps, covering the path from central Ontario to Greenland, are portions of Jet Navigation Charts JNC 18N and JNC 19N (1:2,000,000), Lambert conformal conic projection, supplied courtesy of the U. S. Defense Mapping Agency Headquarters.

All these maps were reduced to 60% of original size for this *Circular*. The original scale for 1:1,000,000 was 15.78 miles to the inch. At the size printed here, the scale is about 26.3 miles to the inch.

The heavy solid lines mark the northern and southern limits of the path of the umbra and the central line. The dashed lines represent projections of the umbral diameter, joining the northern and southern limit points through the projected center for the time indicated. All points on a dashed line observe maximum eclipse at that instant.

Marie Lukac of the Almanac Office spent many hours patiently doing most of the final preparation of these maps. Her assistance is gratefully acknowledged.

OBSERVATIONS. It is requested that precise observations of contact times and precise coordinates of the place of observation be reported to

The Nautical Almanac Office
U. S. Naval Observatory
Washington, D. C. 20390

ELEMENTS OF THE ECLIPSE

U.T. of geocentric conjunction in right ascension, February 26^d17^h21^m20^s.425

	h	m	s		s	s
R. A. of Sun and Moon	22	36	49.720	Hourly motions	9.444	and 146.626
	°	'	"		'	"
Declination of Sun	- 8	44	58.47	Hourly motion	+ 0	56.08
Declination of Moon	- 7	47	55.26	Hourly motion	+10	50.38
Equatorial hor. par. of Sun			8.88	True semidiameter of Sun		16 09.1
Equatorial hor. par. of Moon	61	09.13		True semidiameter of Moon		16 39.7

CIRCUMSTANCES OF THE ECLIPSE

	U. T.	Longitude	Latitude
	d h m	° '	° '
Eclipse begins	February 26 14 45.2	+124 56.1	+19 20.9
Central eclipse begins	26 16 09.1	+139 25.4	+47 16.0
Central eclipse at local apparent noon	26 17 21.3	+ 77 05.3	+61 04.3
Central eclipse ends	26 17 39.0	+ 34 00.3	+77 10.0
Eclipse ends	26 19 03.1	+ 23 36.8	+51 22.4

TOTAL SOLAR ECLIPSE OF 1979 FEBRUARY 26



PATH OF THE TOTAL PHASE

Universal Time h m Limit	Northern Limit		Central Line		Southern Limit	
	Latitude	Longitude	Latitude	Longitude	Latitude	Longitude
	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "
	+48 23	+139 30	+47 16	+139 25	+46 12	+139 21
16 10	.. ..	... ..	+46 22.8	+132 39.5	+44 48.0	+127 26.1
12	+47 31.7	+132 30.8	45 57.8	127 20.6	44 38.4	123 51.3
14	47 11.3	127 27.8	45 51.1	123 53.4	44 37.1	121 03.9
16	47 06.9	124 04.9	45 51.8	121 09.7	44 40.5	118 42.9
18	47 09.4	121 23.1	45 56.9	118 50.6	44 47.3	116 39.0
16 20	+47 16.1	+119 05.1	+46 05.2	+116 48.0	+44 56.6	+114 47.3
22	47 25.7	117 02.9	46 15.8	114 57.0	45 07.9	113 04.9
24	47 37.7	115 12.2	46 28.5	113 15.0	45 20.9	111 29.7
26	47 51.7	113 30.1	46 42.7	111 40.0	45 35.5	110 00.3
28	48 07.2	111 54.8	46 58.5	110 10.5	45 51.3	108 35.6
16 30	+48 24.2	+110 25.0	+47 15.6	+108 45.6	+46 08.4	+107 14.8
32	48 42.6	108 59.6	47 33.8	107 24.5	46 26.5	105 57.3
34	49 02.1	107 37.9	47 53.2	106 06.5	46 45.8	104 42.5
36	49 22.8	106 19.2	48 13.7	104 51.1	47 06.0	103 30.0
38	49 44.6	105 03.0	48 35.2	103 38.0	47 27.2	102 19.5
16 40	+50 07.4	+103 48.9	+48 57.7	+102 26.6	+47 49.4	+101 10.6
42	50 31.3	102 36.5	49 21.1	101 16.7	48 12.5	100 03.0
44	50 56.2	101 25.5	49 45.6	100 08.1	48 36.5	98 56.5
46	51 22.1	100 15.5	50 11.0	99 00.4	49 01.5	97 50.8
48	51 49.0	99 06.3	50 37.3	97 53.3	49 27.3	96 45.7
16 50	+52 17.0	+ 97 57.7	+51 04.7	+ 96 46.8	+49 54.1	+ 95 41.0
52	52 46.0	96 49.4	51 33.1	95 40.5	50 21.9	94 36.6
54	53 16.2	95 41.2	52 02.5	94 34.2	50 50.7	93 32.1
56	53 47.4	94 32.7	52 32.9	93 27.7	51 20.4	92 27.5
58	54 19.9	93 23.9	53 04.5	92 20.8	51 51.2	91 22.4
17 00	+54 53.6	+ 92 14.3	+53 37.3	+ 91 13.3	+52 23.1	+ 90 16.8
02	55 28.6	91 03.8	54 11.2	90 04.9	52 56.1	89 10.3
04	56 05.0	89 52.1	54 46.4	88 55.3	53 30.3	88 02.7
06	56 42.8	88 38.8	55 23.0	87 44.3	54 05.8	86 53.8
08	57 22.3	87 23.6	56 01.1	86 31.5	54 42.7	85 43.3
17 10	+58 03.5	+ 86 06.0	+56 40.8	+ 85 16.6	+55 21.0	+ 84 30.9
12	58 46.6	84 45.6	57 22.1	83 59.1	56 00.9	83 16.1
14	59 31.8	83 21.8	58 05.4	82 38.5	56 42.5	81 58.6
16	60 19.4	81 53.8	58 50.8	81 14.3	57 26.0	80 37.7
18	61 09.6	80 20.8	59 38.5	79 45.7	58 11.6	79 13.0
17 20	+62 02.9	+ 78 41.7	+60 28.9	+ 78 11.8	+58 59.6	+ 77 43.6
22	62 59.7	76 55.0	61 22.3	76 31.4	59 50.2	76 08.6
24	64 00.8	74 58.5	62 19.3	74 42.9	60 43.9	74 26.7
26	65 07.2	72 49.5	63 20.6	72 44.1	61 41.2	72 36.3
28	66 20.2	70 23.4	64 27.1	70 32.1	62 42.8	70 35.0
17 30	+67 42.0	+ 67 33.1	+65 40.3	+ 68 01.9	+63 49.7	+ 68 19.6
32	69 16.6	64 05.2	67 02.4	65 06.0	65 03.5	65 45.0
34	71 12.2	59 30.0	68 37.6	61 29.8	66 26.4	62 42.7
36	+73 54.7	+ 52 06.6	70 34.5	56 40.5	68 02.9	58 56.7
17 38	.. ..	... ..	+73 22.1	+ 48 39.5	+70 02.6	+ 53 49.2
39	.. ..	... ..	76 27.7	37 13.5	71 19.0	50 12.3
Limit	+77 58	+ 37 16	+77 10	+ 34 00	+76 21	+ 31 17

CENTRAL LINE OF TOTAL PHASE

Universal Time h m	10,000 Feet		20,000 Feet		30,000 Feet		40,000 Feet	
	Latitude	Longitude	Latitude	Longitude	Latitude	Longitude	Latitude	Longitude
16 09	.. ..	... ..	+46 50.2	+137 15.5	+46 37.6	+136 06.7	+46 27.9	+135 16.7
10	+46 16.9	+132 13.7	46 11.3	131 49.5	46 05.9	131 26.7	46 00.7	131 05.0
16 12	+45 53.8	+127 06.6	+45 49.8	+126 53.0	+45 45.9	+126 39.6	+45 42.0	+126 26.5
14	45 47.6	123 42.9	45 44.1	123 32.5	45 40.7	123 22.3	45 37.3	123 12.2
16	45 48.5	121 00.9	45 45.3	120 52.3	45 42.1	120 43.8	45 38.9	120 35.4
18	45 53.8	118 43.1	45 50.8	118 35.6	45 47.7	118 28.2	45 44.7	118 20.8
16 20	+46 02.2	+116 41.2	+45 59.2	+116 34.6	+45 56.3	+116 27.9	+45 53.4	+116 21.4
22	46 12.9	114 50.9	46 10.0	114 44.9	46 07.2	114 38.9	46 04.3	114 32.9
24	46 25.6	113 09.4	46 22.8	113 03.6	46 19.9	112 58.3	46 17.1	112 52.8
26	46 39.9	111 34.8	46 37.1	111 29.6	46 34.3	111 24.5	46 31.6	111 19.4
28	46 55.7	110 05.7	46 52.9	110 00.8	46 50.2	109 56.1	46 47.4	109 51.3
16 30	+47 12.8	+108 41.1	+47 10.0	+108 36.5	+47 07.3	+108 32.0	+47 04.5	+108 27.6
32	47 31.1	107 20.2	47 28.3	107 15.9	47 25.5	107 11.7	47 22.8	107 07.5
34	47 50.4	106 02.4	47 47.7	105 58.4	47 44.9	105 54.4	47 42.2	105 50.4
36	48 10.9	104 47.3	48 08.1	104 43.5	48 05.4	104 39.7	48 02.6	104 35.9
38	48 32.4	103 34.3	48 29.6	103 30.7	48 26.8	103 27.1	48 24.1	103 23.5
16 40	+48 54.8	+102 23.1	+48 52.1	+102 19.7	+48 49.3	+102 16.2	+48 46.5	+102 12.8
42	49 18.3	101 13.4	49 15.5	101 10.1	49 12.7	101 06.8	49 09.9	101 03.6
44	49 42.7	100 04.9	49 39.9	100 01.8	49 37.0	99 58.6	49 34.2	99 55.5
46	50 08.1	98 57.3	50 05.2	98 54.3	50 02.4	98 51.4	49 59.5	98 48.4
48	50 34.4	97 50.5	50 31.5	97 47.6	50 28.7	97 44.7	50 25.8	97 41.9
16 50	+51 01.8	+ 96 44.0	+50 58.8	+ 96 41.3	+50 55.9	+ 96 38.6	+50 53.0	+ 96 35.9
52	51 30.1	95 37.9	51 27.1	95 35.2	51 24.2	95 32.7	51 21.2	95 30.1
54	51 59.5	94 31.7	51 56.4	94 29.2	51 53.4	94 26.8	51 50.4	94 24.3
56	52 29.9	93 25.4	52 26.8	93 23.0	52 23.7	93 20.7	52 20.7	93 18.3
58	53 01.4	92 18.6	52 58.3	92 16.4	52 55.2	92 14.2	52 52.0	92 12.0
17 00	+53 34.1	+ 91 11.2	+53 30.9	+ 91 09.1	+53 27.7	+ 91 07.0	+53 24.5	+ 91 04.9
02	54 07.9	90 02.9	54 04.7	90 00.9	54 01.4	89 59.0	53 58.2	89 57.0
04	54 43.1	88 53.4	54 39.8	88 51.6	54 36.5	88 49.8	54 33.2	88 48.0
06	55 19.6	87 42.6	55 16.2	87 40.9	55 12.8	87 39.2	55 09.4	87 37.5
08	55 57.6	86 29.9	55 54.1	86 28.4	55 50.6	86 26.9	55 47.2	86 25.4
17 10	+56 37.2	+ 85 15.2	+56 33.6	+ 85 13.8	+56 30.0	+ 85 12.4	+56 26.4	+ 85 11.1
12	57 18.4	83 57.9	57 14.7	83 56.7	57 11.0	83 55.5	57 07.4	83 54.3
14	58 01.6	82 37.5	57 57.8	82 36.5	57 54.0	82 35.5	57 50.2	82 34.5
16	58 46.8	81 13.5	58 42.9	81 12.8	58 38.9	81 12.0	58 35.0	81 11.2
18	59 34.4	79 45.2	59 30.3	79 44.7	59 26.2	79 44.1	59 22.1	79 43.6
17 20	+60 24.6	+ 78 11.6	+60 20.3	+ 78 11.3	+60 16.0	+ 78 11.1	+60 11.8	+ 78 10.9
22	61 17.8	76 31.5	61 13.3	76 31.6	61 08.8	76 31.7	61 04.4	76 31.9
24	62 14.5	74 43.4	62 09.8	74 44.0	62 05.1	74 44.5	62 00.4	74 45.1
26	63 15.5	72 45.2	63 10.5	72 46.4	63 05.5	72 47.5	63 00.5	72 48.6
28	64 21.6	70 33.9	64 16.2	70 35.8	64 10.9	70 37.6	64 05.6	70 39.4
17 30	+65 34.4	+ 68 04.9	+65 28.5	+ 68 07.7	+65 22.7	+ 68 10.5	+65 16.9	+ 68 13.3
32	66 55.8	65 10.5	66 49.3	65 14.9	66 42.9	65 19.2	66 36.5	65 23.4
34	68 30.0	61 36.9	68 22.6	61 43.8	68 15.2	61 50.5	68 07.9	61 57.1
36	70 25.2	56 52.9	70 16.0	57 04.9	70 07.0	57 16.5	69 58.2	57 27.8
17 38	+73 07.6	+ 49 11.0	+72 53.8	+ 49 40.1	+72 40.5	+ 50 07.3	+72 27.7	+ 50 32.6
39	+75 42.5	+ 40 04.5	+75 12.2	+ 41 45.6	+74 47.6	+ 43 01.7	+74 26.1	+ 44 03.8

DURATION OF TOTAL PHASE AND WIDTH OF PATH ON CENTRAL LINE

Universal Time	10,000 Feet		20,000 Feet		30,000 Feet		40,000 Feet	
	Duration	Width of Path	Duration	Width of Path	Duration	Width of Path	Duration	Width of Path
h m	m s	mi	m s	mi	m s	mi	m s	mi
16 09	• • • •	• • • •	1 52.3	147	1 54.0	148	1 55.2	149
10	1 59.8	155	2 00.5	156	2 01.1	156	2 01.6	156
16 12	2 08.1	163	2 08.5	163	2 08.9	164	2 09.3	164
14	2 13.8	170	2 14.1	170	2 14.5	170	2 14.8	170
16	2 18.5	174	2 18.7	175	2 19.0	175	2 19.3	175
18	2 22.4	178	2 22.7	179	2 22.9	179	2 23.2	178
16 20	2 25.9	182	2 26.1	182	2 26.4	182	2 26.6	182
22	2 29.0	185	2 29.2	185	2 29.5	185	2 29.7	184
24	2 31.8	187	2 32.0	187	2 32.2	187	2 32.4	187
26	2 34.3	190	2 34.5	189	2 34.7	189	2 34.9	189
28	2 36.5	191	2 36.7	191	2 36.9	191	2 37.1	191
16 30	2 38.5	193	2 38.7	192	2 39.0	192	2 39.2	191
32	2 40.4	193	2 40.6	193	2 40.8	193	2 41.0	192
34	2 42.0	194	2 42.2	194	2 42.4	194	2 42.6	193
36	2 43.4	194	2 43.6	194	2 43.8	194	2 44.0	194
38	2 44.7	194	2 44.9	194	2 45.1	194	2 45.3	194
16 40	2 45.8	194	2 46.0	194	2 46.2	194	2 46.4	194
42	2 46.8	194	2 47.0	194	2 47.2	194	2 47.3	193
44	2 47.6	193	2 47.8	193	2 48.0	193	2 48.1	192
46	2 48.2	193	2 48.4	192	2 48.6	192	2 48.8	191
48	2 48.7	192	2 48.9	191	2 49.1	191	2 49.3	191
16 50	2 49.0	191	2 49.2	190	2 49.4	191	2 49.6	190
52	2 49.2	190	2 49.4	190	2 49.6	189	2 49.8	189
54	2 49.2	189	2 49.4	188	2 49.6	188	2 49.8	187
56	2 49.1	187	2 49.3	186	2 49.5	187	2 49.7	186
58	2 48.9	186	2 49.0	186	2 49.2	185	2 49.4	185
17 00	2 48.5	184	2 48.6	184	2 48.8	183	2 49.0	183
02	2 47.9	182	2 48.1	182	2 48.3	182	2 48.5	182
04	2 47.2	181	2 47.4	181	2 47.6	180	2 47.8	180
06	2 46.3	179	2 46.5	179	2 46.7	179	2 46.9	179
08	2 45.3	178	2 45.5	178	2 45.7	177	2 45.9	177
17 10	2 44.2	176	2 44.4	175	2 44.6	175	2 44.8	176
12	2 42.8	174	2 43.0	174	2 43.2	174	2 43.4	173
14	2 41.3	172	2 41.5	172	2 41.7	172	2 41.9	172
16	2 39.7	170	2 39.9	171	2 40.1	170	2 40.3	170
18	2 37.8	169	2 38.0	169	2 38.2	168	2 38.4	168
17 20	2 35.7	167	2 35.9	167	2 36.1	167	2 36.4	167
22	2 33.5	165	2 33.7	165	2 33.9	165	2 34.1	164
24	2 31.0	163	2 31.2	163	2 31.4	163	2 31.6	163
26	2 28.2	162	2 28.4	161	2 28.6	161	2 28.9	161
28	2 25.1	159	2 25.3	159	2 25.6	160	2 25.8	159
17 30	2 21.7	158	2 21.9	158	2 22.2	157	2 22.4	157
32	2 17.7	155	2 18.0	156	2 18.3	156	2 18.6	156
34	2 13.2	154	2 13.5	153	2 13.8	153	2 14.1	153
36	2 07.6	151	2 08.0	151	2 08.4	151	2 08.8	151
17 38	1 59.8	148	2 00.4	148	2 01.0	148	2 01.5	148
39	1 52.5	146	1 53.8	146	1 54.9	146	1 55.8	146

CENTRAL LINE OF TOTAL PHASE

Universal Time	80 Km		100 Km		200 Km		300 Km	
	Latitude	Longitude	Latitude	Longitude	Latitude	Longitude	Latitude	Longitude
h m	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "
16 00	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	+41 29.6	+130 47.6
02	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	41 06.5	126 02.9
04	.. ..	.. ..	.. ..	.. ..	+42 46.2	+128 59.7	40 58.2	122 49.9
06	.. ..	.. ..	+44 50.5	+134 05.2	42 31.3	124 59.7	40 56.5	120 15.9
08	+44 43.3	+129 37.6	44 15.9	127 54.7	42 26.8	122 02.4	40 58.8	118 04.9
16 10	+44 28.5	+125 28.8	+44 05.9	+124 17.0	+42 27.6	+119 36.5	+41 03.9	+116 09.3
12	44 24.7	122 26.6	44 04.3	121 28.8	42 32.1	117 30.2	41 11.2	114 24.9
14	44 26.6	119 57.1	44 07.4	119 07.7	42 39.1	115 37.6	41 20.3	112 49.1
16	44 32.2	117 47.7	44 13.8	117 04.2	42 48.1	113 55.1	41 30.8	111 20.1
18	44 40.5	115 52.3	44 22.6	115 13.1	42 58.8	112 20.4	41 42.6	109 56.7
16 20	+44 50.9	+114 07.2	+44 33.4	+113 31.4	+43 11.0	+110 52.1	+41 55.5	+108 37.9
22	45 03.1	112 30.0	44 45.8	111 57.0	43 24.4	109 28.8	42 09.5	107 22.8
24	45 16.7	110 59.2	44 59.7	110 28.5	43 38.9	108 09.8	42 24.4	106 11.1
26	45 31.8	109 33.5	45 14.8	109 04.8	43 54.5	106 54.4	42 40.1	105 02.1
28	45 48.0	108 12.1	45 31.1	107 45.0	44 11.0	105 42.0	42 56.7	103 55.5
16 30	+46 05.3	+106 54.2	+45 48.5	+106 28.6	+44 28.4	+104 32.1	+43 14.1	+102 50.9
32	46 23.6	105 39.2	46 06.8	105 15.0	44 46.7	103 24.4	43 32.2	101 48.1
34	46 43.0	104 26.8	46 26.1	104 03.8	45 05.8	102 18.7	43 51.0	100 46.9
36	47 03.2	103 16.4	46 46.3	102 54.6	45 25.7	101 14.5	44 10.6	99 46.9
38	47 24.4	102 07.9	47 07.4	101 47.1	45 46.3	100 11.6	44 30.8	98 48.0
16 40	+47 46.5	+101 00.8	+47 29.4	+100 40.9	+46 07.8	+ 99 09.9	+44 51.7	+ 97 50.1
45	48 45.5	98 17.9	48 28.0	98 00.2	47 04.7	96 39.2	45 47.0	95 28.2
50	49 49.9	95 39.0	49 32.0	95 23.4	48 06.3	94 11.6	46 46.5	93 08.7
55	51 00.1	93 01.3	50 41.5	92 47.5	49 12.8	91 44.5	47 50.4	90 49.5
17 00	+52 16.3	+ 90 21.6	+51 56.9	+ 90 09.7	+50 24.6	+ 89 15.6	+48 59.0	+ 88 28.6
02	52 48.6	89 16.5	52 28.8	89 05.4	50 54.9	88 14.9	49 27.9	87 31.3
04	53 22.1	88 10.3	53 01.9	88 00.0	51 26.1	87 13.3	49 57.6	86 33.1
06	53 56.7	87 02.9	53 36.1	86 53.4	51 58.3	86 10.7	50 28.1	85 34.0
08	54 32.6	85 53.9	54 11.6	85 45.3	52 31.6	85 06.7	50 59.6	84 33.7
17 10	+55 09.9	+ 84 43.0	+54 48.3	+ 84 35.4	+53 06.1	+ 84 01.2	+51 32.1	+ 83 32.2
12	55 48.7	83 29.9	55 26.5	83 23.4	53 41.7	82 53.9	52 05.6	82 29.0
14	56 29.1	82 14.3	56 06.3	82 08.8	54 18.6	81 44.5	52 40.2	81 24.1
16	57 11.2	80 55.5	56 47.7	80 51.3	54 56.9	80 32.6	53 16.0	80 17.0
18	57 55.3	79 33.1	57 30.9	79 30.3	55 36.7	79 17.9	53 53.1	79 07.6
17 20	+58 41.4	+ 78 06.3	+58 16.2	+ 78 05.1	+56 18.2	+ 77 59.8	+54 31.5	+ 77 55.4
22	59 30.1	76 34.3	59 03.8	76 35.0	57 01.5	76 37.8	55 11.4	76 40.1
24	60 21.5	74 56.1	59 54.1	74 58.9	57 46.8	75 11.2	55 53.0	75 21.0
26	61 16.1	73 10.1	60 47.3	73 15.6	58 34.5	73 39.0	56 36.4	73 57.5
28	62 14.4	71 14.4	61 44.0	71 23.3	59 24.7	72 00.3	57 21.9	72 29.0
17 30	+63 17.4	+ 69 06.4	+62 45.0	+ 69 19.5	+60 17.9	+ 70 13.5	+58 09.6	+ 70 54.3
32	64 26.1	66 42.0	63 51.3	67 00.9	61 14.7	68 16.7	59 00.0	69 12.4
34	65 42.3	63 54.8	65 04.2	64 21.9	62 15.8	66 07.1	59 53.5	67 21.4
36	67 09.0	60 33.9	66 26.3	61 13.6	63 22.3	63 40.8	60 50.5	65 19.3
38	68 51.6	56 16.4	68 01.7	57 18.7	64 35.6	60 51.2	61 52.1	63 02.8
17 40	+71 05.0	+ 50 00.6	+70 00.5	+ 51 55.7	+65 58.6	+ 57 27.6	+62 59.2	+ 60 27.1
42	.. ..	.. ..	+73 01.3	+ 42 06.6	67 36.2	53 07.9	64 13.7	57 24.5
44	.. ..	.. ..	.. ..	.. ..	69 41.0	46 54.0	65 38.8	53 41.1
46	.. ..	.. ..	.. ..	.. ..	+73 44.3	+ 31 02.9	67 20.8	48 46.7
48	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	+69 39.1	+ 41 05.2

DURATION OF TOTAL PHASE AND WIDTH OF PATH ON CENTRAL LINE

Universal Time	80 Km		100 Km		200 Km		300 Km	
	Duration		Duration		Duration		Duration	
	m	s	m	s	m	s	m	s
h m								
16 00	•	••	•	••	•	••	2	02.1
02	•	••	•	••	•	••	2	11.1
04	•	••	•	••	2	05.4	2	17.5
06	•	••	1	56.9	2	12.8	2	22.8
08	2	04.1	2	07.1	2	18.5	2	27.4
16 10	2	11.3	2	13.6	2	23.3	2	31.6
12	2	16.7	2	18.7	2	27.5	2	35.3
14	2	21.3	2	23.1	2	31.2	2	38.7
16	2	25.2	2	26.9	2	34.6	2	41.8
18	2	28.8	2	30.3	2	37.7	2	44.7
16 20	2	31.9	2	33.4	2	40.5	2	47.3
22	2	34.7	2	36.2	2	43.1	2	49.8
24	2	37.3	2	38.7	2	45.5	2	52.0
26	2	39.6	2	41.0	2	47.7	2	54.1
28	2	41.8	2	43.1	2	49.6	2	55.9
16 30	2	43.7	2	45.0	2	51.4	2	57.7
32	2	45.4	2	46.7	2	53.1	2	59.3
34	2	47.0	2	48.3	2	54.5	3	00.7
36	2	48.4	2	49.6	2	55.9	3	01.9
38	2	49.6	2	50.9	2	57.0	3	03.1
16 40	2	50.7	2	51.9	2	58.0	3	04.0
45	2	52.7	2	53.9	2	59.9	3	05.9
50	2	53.7	2	54.9	3	00.9	3	06.8
55	2	53.9	2	55.1	3	01.1	3	07.0
17 00	2	53.2	2	54.4	3	00.4	3	06.2
02	2	52.6	2	53.8	2	59.8	3	05.7
04	2	51.9	2	53.1	2	59.2	3	05.1
06	2	51.1	2	52.3	2	58.4	3	04.3
08	2	50.1	2	51.4	2	57.4	3	03.4
17 10	2	49.0	2	50.2	2	56.3	3	02.3
12	2	47.7	2	48.9	2	55.1	3	01.1
14	2	46.3	2	47.5	2	53.7	2	59.8
16	2	44.7	2	45.9	2	52.2	2	58.3
18	2	42.9	2	44.2	2	50.5	2	56.6
17 20	2	40.9	2	42.2	2	48.6	2	54.9
22	2	38.8	2	40.1	2	46.6	2	52.9
24	2	36.4	2	37.8	2	44.4	2	50.8
26	2	33.8	2	35.2	2	42.0	2	48.5
28	2	31.0	2	32.4	2	39.4	2	46.1
17 30	2	27.9	2	29.4	2	36.6	2	43.4
32	2	24.4	2	26.0	2	33.5	2	40.5
34	2	20.5	2	22.2	2	30.2	2	37.4
36	2	16.0	2	17.9	2	26.5	2	34.1
38	2	10.7	2	12.9	2	22.3	2	30.4
17 40	2	03.8	2	06.7	2	17.6	2	26.3
42	•	••	1	57.2	2	12.1	2	21.8
44	•	••	•	••	2	05.0	2	16.6
46	•	••	•	••	1	51.1	2	10.4
48	•	••	•	••	•	••	2	01.9

LOCAL CIRCUMSTANCES FOR POINTS ON CENTRAL LINE

Universal Time	Central Line		First Contact			Second Contact		
	Latitude	Longitude	Universal Time	P	V	Universal Time	P	V
h m	° '	° '	h m s	°	°	h m s	°	°
16 10	+46 22.8	+132 39.5	.. .. .	...	...	16 08 59.0	75	117
12	45 57.8	127 20.6	.. .. .	...	...	16 10 54.7	74	115
14	45 51.1	123 53.4	15 11 38.0	255	298	16 12 51.8	74	114
16	45 51.8	121 09.7	15 12 34.8	254	297	16 14 49.4	74	112
18	45 56.9	118 50.6	15 13 40.1	254	296	16 16 47.4	73	111
16 20	+46 05.2	+116 48.0	15 14 51.4	254	295	16 18 45.6	73	109
22	46 15.8	114 57.0	15 16 07.3	254	294	16 20 44.0	73	108
24	46 28.5	113 15.0	15 17 27.2	253	293	16 22 42.7	72	107
26	46 42.7	111 40.0	15 18 50.3	253	292	16 24 41.4	72	105
28	46 58.5	110 10.5	15 20 16.3	253	291	16 26 40.3	72	104
16 30	+47 15.6	+108 45.6	15 21 45.0	253	290	16 28 39.2	72	103
32	47 33.8	107 24.5	15 23 16.1	252	289	16 30 38.3	71	101
34	47 53.2	106 06.5	15 24 49.5	252	288	16 32 37.4	71	100
36	48 13.7	104 51.1	15 26 25.1	252	287	16 34 36.7	71	99
38	48 35.2	103 38.0	15 28 02.6	252	286	16 36 36.1	71	97
16 40	+48 57.7	+102 26.6	15 29 42.2	252	285	16 38 35.5	71	96
42	49 21.1	101 16.7	15 31 23.8	252	284	16 40 35.0	70	94
44	49 45.6	100 08.1	15 33 07.3	251	283	16 42 34.6	70	93
46	50 11.0	99 00.4	15 34 52.7	251	281	16 44 34.3	70	92
48	50 37.3	97 53.3	15 36 39.9	251	280	16 46 34.1	70	90
16 50	+51 04.7	+ 96 46.8	15 38 29.1	251	279	16 48 33.9	70	89
52	51 33.1	95 40.5	15 40 20.1	251	278	16 50 33.8	70	88
54	52 02.5	94 34.2	15 42 13.0	251	277	16 52 33.8	70	86
56	52 32.9	93 27.7	15 44 07.8	250	275	16 54 33.8	70	85
58	53 04.5	92 20.8	15 46 04.5	250	274	16 56 34.0	69	84
17 00	+53 37.3	+ 91 13.3	15 48 03.2	250	273	16 58 34.2	69	82
02	54 11.2	90 04.9	15 50 03.8	250	272	17 00 34.4	69	81
04	54 46.4	88 55.3	15 52 06.5	250	270	17 02 34.8	69	80
06	55 23.0	87 44.3	15 54 11.3	250	269	17 04 35.2	69	79
08	56 01.1	86 31.5	15 56 18.3	250	268	17 06 35.8	69	77
17 10	+56 40.8	+ 85 16.6	15 58 27.5	250	266	17 08 36.4	69	76
12	57 22.1	83 59.1	16 00 39.1	250	265	17 10 37.0	69	75
14	58 05.4	82 38.5	16 02 53.1	250	264	17 12 37.8	69	74
16	58 50.8	81 14.3	16 05 09.7	250	262	17 14 38.6	69	73
18	59 38.5	79 45.7	16 07 29.0	250	261	17 16 39.6	69	71
17 20	+60 28.9	+ 78 11.8	16 09 51.3	250	259	17 18 40.6	69	70
22	61 22.3	76 31.4	16 12 16.8	250	258	17 20 41.8	69	69
24	62 19.3	74 42.9	16 14 45.8	250	257	17 22 43.0	69	68
26	63 20.6	72 44.1	16 17 18.9	250	255	17 24 44.5	70	67
28	64 27.1	70 32.1	16 19 56.7	250	254	17 26 46.0	70	66
17 30	+65 40.3	+ 68 01.9	16 22 40.1	250	252	17 28 47.8	70	65
32	67 02.4	65 06.0	16 25 30.5	250	251	17 30 49.7	70	64
34	68 37.6	61 29.8	16 28 30.8	250	250	17 32 52.1	70	64
36	70 34.5	56 40.5	16 31 46.7	251	248	17 34 54.9	71	63
17 38	+73 22.1	+ 48 39.5	16 35 37.7	251	246	17 36 59.0	71	62
39	+76 27.7	+ 37 13.5	16 38 42.4	252	245	17 38 03.4	72	62

LOCAL CIRCUMSTANCES FOR POINTS ON CENTRAL LINE

Maximum Eclipse						Third Contact					Fourth Contact					Duration		Width of
Universal Time			Magnitude	Sun's		Universal Time			P	V	Universal Time			P	V	m	s	mi
h	m	s		Alt.	Az.	h	m	s			h	m	s					
16	10	00.0	1.034	5	108	16	11	01.0	255	297	17	14	15.2	74	111	2	02.0	155
16	12	00.0	1.035	9	112	16	13	05.3	254	295	17	18	25.0	73	108	2	10.6	163
16	14	00.0	1.036	11	115	16	15	08.2	254	294	17	21	51.1	73	106	2	16.4	170
16	16	00.0	1.036	13	118	16	17	10.6	254	292	17	24	58.9	72	104	2	21.2	174
16	18	00.0	1.037	15	120	16	19	12.6	253	291	17	27	55.3	72	102	2	25.2	179
16	20	00.0	1.037	17	122	16	21	14.4	253	289	17	30	43.3	72	100	2	28.8	182
16	22	00.0	1.038	18	124	16	23	16.0	253	288	17	33	24.9	71	98	2	32.0	185
16	24	00.0	1.038	19	126	16	25	17.3	252	287	17	36	01.1	71	96	2	34.6	188
16	26	00.0	1.038	20	128	16	27	18.6	252	285	17	38	32.6	71	94	2	37.2	189
16	28	00.0	1.038	21	130	16	29	19.7	252	284	17	41	00.1	71	92	2	39.4	191
16	30	00.0	1.039	22	132	16	31	20.8	252	282	17	43	23.8	70	91	2	41.6	193
16	32	00.0	1.039	22	134	16	33	21.7	251	281	17	45	44.1	70	89	2	43.4	193
16	34	00.0	1.039	23	135	16	35	22.6	251	280	17	48	01.3	70	87	2	45.2	194
16	36	00.0	1.039	24	137	16	37	23.3	251	278	17	50	15.5	70	86	2	46.6	195
16	38	00.0	1.039	24	139	16	39	23.9	251	277	17	52	27.0	70	84	2	47.8	195
16	40	00.0	1.040	24	141	16	41	24.5	251	275	17	54	35.9	70	82	2	49.0	195
16	42	00.0	1.040	25	142	16	43	25.0	250	274	17	56	42.2	69	81	2	50.0	194
16	44	00.0	1.040	25	144	16	45	25.4	250	273	17	58	46.1	69	79	2	50.8	193
16	46	00.0	1.040	25	146	16	47	25.7	250	271	18	00	47.8	69	78	2	51.4	193
16	48	00.0	1.040	26	148	16	49	25.9	250	270	18	02	47.2	69	77	2	51.8	192
16	50	00.0	1.040	26	150	16	51	26.1	250	269	18	04	44.3	69	75	2	52.2	191
16	52	00.0	1.040	26	151	16	53	26.2	250	267	18	06	39.4	69	74	2	52.4	190
16	54	00.0	1.040	26	153	16	55	26.2	250	266	18	08	32.5	69	73	2	52.4	189
16	56	00.0	1.040	26	155	16	57	26.2	250	265	18	10	23.4	69	72	2	52.4	187
16	58	00.0	1.040	26	157	16	59	26.0	249	263	18	12	12.4	69	70	2	52.0	186
17	00	00.0	1.040	26	159	17	01	25.8	249	262	18	13	59.5	69	69	2	51.6	185
17	02	00.0	1.040	25	160	17	03	25.6	249	261	18	15	44.5	69	68	2	51.2	183
17	04	00.0	1.040	25	162	17	05	25.2	249	259	18	17	27.6	69	67	2	50.4	182
17	06	00.0	1.040	25	164	17	07	24.8	249	258	18	19	08.8	69	66	2	49.6	180
17	08	00.0	1.039	24	166	17	09	24.2	249	257	18	20	47.9	69	65	2	48.4	178
17	10	00.0	1.039	24	168	17	11	23.6	249	256	18	22	25.1	69	64	2	47.2	176
17	12	00.0	1.039	24	170	17	13	23.0	249	254	18	24	00.3	69	64	2	46.0	174
17	14	00.0	1.039	23	172	17	15	22.2	249	253	18	25	33.2	69	63	2	44.4	173
17	16	00.0	1.039	22	174	17	17	21.4	249	252	18	27	04.1	69	62	2	42.8	171
17	18	00.0	1.039	22	176	17	19	20.4	249	251	18	28	32.6	69	61	2	40.8	169
17	20	00.0	1.038	21	178	17	21	19.4	249	250	18	29	58.7	69	61	2	38.8	167
17	22	00.0	1.038	20	181	17	23	18.2	249	249	18	31	22.1	69	60	2	36.4	166
17	24	00.0	1.038	19	183	17	25	17.0	249	248	18	32	42.7	69	60	2	34.0	164
17	26	00.0	1.037	18	186	17	27	15.5	250	247	18	33	59.8	69	59	2	31.0	162
17	28	00.0	1.037	17	188	17	29	14.0	250	246	18	35	13.1	70	59	2	28.0	160
17	30	00.0	1.037	15	191	17	31	12.2	250	245	18	36	21.8	70	58	2	24.4	158
17	32	00.0	1.036	14	195	17	33	10.3	250	244	18	37	24.4	70	58	2	20.6	156
17	34	00.0	1.035	12	199	17	35	07.9	250	243	18	38	18.4	70	58	2	15.8	154
17	36	00.0	1.035	9	204	17	37	05.1	251	243	18	38	58.7	71	58	2	10.2	151
17	38	00.0	1.033	5	212	17	39	01.0	251	242	18	39	07.3	71	59	2	02.0	148
17	39	00.0	1.032	1	224	17	39	56.6	252	242	..	..	...	...	...	1	53.2	145

LOCAL CIRCUMSTANCES

Geographic Locations	Latitude		Longitude	First Contact			Second Contact		
	°	'		Universal Time	P	V	Universal Time	P	V
	h	m	s	°	°		h	m	s
ALABAMA									
Birmingham	+33	31.0	+86	48.6	15 28 25.6	269	307		
Gadsden	+34	01.0	+86	00.7	15 30 20.6	268	305		
Mobile	+30	41.6	+88	02.6	15 23 40.0	272	314		
Huntsville	+34	43.9	+86	35.2	15 30 01.1	267	304		
Montgomery	+32	22.6	+86	18.5	15 28 17.4	270	309		
University, <i>Obs. of Univ. of Alabama</i>	+33	12.6	+87	32.6	15 26 49.9	269	308		
ALASKA									
Anchorage	+61	10.0	+149	59.0	.. .. .	...	...		
College, <i>Geophys. Inst. of Univ. of Alaska</i>	+64	52.4	+147	50.0	.. .. .	...	...		
Fairbanks	+64	48.0	+147	51.0	.. .. .	...	...		
Juneau	+58	18.2	+134	24.5	.. .. .	...	...		
ARIZONA									
Flagstaff, <i>Branch of U. S. Naval Obs.</i>	+35	11.0	+111	44.4	15 01 06.6	264	316		
Flagstaff, <i>Lowell Obs.</i>	+35	12.1	+111	39.8	15 01 11.0	264	316		
Phoenix	+33	27.2	+112	04.5	14 58 45.2	266	320		
Scottsdale, <i>Mummy Mt. Astron. Obs.</i>	+33	33.3	+111	57.5	14 58 56.8	266	319		
Tucson, <i>Catalina Station, Univ. of Ariz.</i>	+32	25.0	+110	43.9	14 58 21.1	267	321		
Tucson, <i>Kitt Peak National Obs.</i>	+31	57.5	+111	35.7	14 57 16.7	268	323		
Tucson, <i>Mt. Hopkins, SAO</i>	+31	41.0	+110	52.6	14 57 25.5	268	323		
Tucson, <i>Steward Obs., Univ. of Ariz.</i>	+32	14.0	+110	56.9	14 58 01.4	268	322		
Yuma	+32	42.9	+114	37.4	14 56 26.9	267	322		
ARKANSAS									
Fort Smith	+35	23.1	+94	25.1	15 18 30.7	265	308		
Little Rock	+34	44.7	+92	16.6	15 20 48.3	266	308		
CALIFORNIA									
Bakersfield	+35	22.5	+119	01.3	14 57 44.3	265	318		
Big Bear City, <i>Big Bear Solar Obs.</i>	+34	15.2	+116	54.8	14 57 10.0	266	320		
Big Pine, <i>California Inst. of Tech.</i>	+37	13.9	+118	17.6	15 00 27.8	263	314		
Borrego Springs, <i>Clark Lake Radio Obs.</i>	+33	20.3	+116	16.8	14 56 22.5	267	321		
Claremont, <i>Brackett Obs., Pomona Coll.</i>	+34	05.6	+117	42.7	14 56 39.4	266	320		
El Segundo, <i>Space Radio Research Facility</i>	+33	54.9	+118	22.5	14 56 11.0	266	321		
Eureka	+40	46.9	+124	09.4	15 03 35.2	260	308		
Fresno	+36	44.2	+119	47.2	14 59 13.9	263	315		
Goldstone, <i>Jet Prop. Lab., CalTech.</i>	+35	23.6	+116	50.9	14 58 38.6	265	317		
Hat Creek, <i>Radio Obs., Univ. of Calif.</i>	+40	49.1	+121	28.4	15 04 25.7	259	307		
Lafayette, <i>Leuschner Obs., Univ. of Calif.</i>	+37	55.1	+122	09.4	15 00 03.2	262	314		
Long Beach	+33	46.2	+118	11.3	14 56 05.0	267	321		
Los Angeles, <i>Griffith Obs.</i>	+34	06.8	+118	18.1	14 56 26.3	266	321		
Mount Hamilton, <i>Lick Obs.</i>	+37	20.4	+121	38.7	14 59 24.5	263	315		
Mount Wilson, <i>Hale Obs.</i>	+34	13.0	+118	03.6	14 56 38.8	266	320		
Oakland, <i>Chabot Obs.</i>	+37	47.0	+122	12.0	14 59 51.5	263	314		
Palo Alto, <i>Stanford Research Inst.</i>	+37	24.3	+122	10.6	14 59 21.2	263	315		
Palomar Mountain, <i>Hale Obs.</i>	+33	21.4	+116	51.8	14 56 06.9	267	322		
Sacramento	+38	35.0	+121	29.7	15 01 11.0	262	312		
San Bernardino	+34	06.5	+117	17.5	14 56 51.1	266	320		
San Diego, <i>State Coll. Obs.</i>	+32	46.6	+117	04.2	14 55 22.6	268	323		
San Fernando, <i>Van Norman Solar Obs.</i>	+34	18.5	+118	29.5	14 56 36.5	266	320		
San Francisco	+37	46.7	+122	24.7	14 59 47.5	263	314		
Santa Barbara	+34	25.3	+119	41.9	14 56 18.8	266	320		
Santa Clara, <i>Obs. of the Univ.</i>	+37	20.8	+121	57.0	14 59 20.5	263	315		
Santa Cruz	+36	58.3	+122	01.3	14 58 49.3	263	316		
Stanford, <i>Radio Astron. Inst.</i>	+37	23.9	+122	11.3	14 59 20.5	263	315		
Stockton	+37	57.5	+121	17.3	15 00 22.8	262	313		
Ukiah, <i>International Latitude Obs.</i>	+39	08.2	+123	12.6	15 01 27.2	261	311		
Wrightwood, <i>Table Mt. Obs.</i>	+34	22.9	+117	40.9	14 56 59.7	266	320		
COLORADO									
Boulder, <i>Sommers-Bausch Obs.</i>	+40	00.2	+105	15.7	15 12 50.1	259	303		
Colorado Springs	+38	50.1	+104	49.3	15 11 29.5	260	305		
Denver, <i>Chamberlin Obs., Univ. of Denver</i>	+39	40.6	+104	56.9	15 12 37.3	259	303		
Grand Junction	+39	04.1	+108	33.1	15 08 45.7	260	306		
Pueblo	+38	16.3	+104	36.6	15 10 52.2	261	306		
South Park, <i>Tiara Obs.</i>	+38	58.2	+105	31.0	15 11 04.0	260	305		

LOCAL CIRCUMSTANCES

Obscuration	Maximum Eclipse				Sun's		Third Contact				Fourth Contact				Duration		Width of Path		
	Universal Time			Magnitude			Universal Time	P	V	Universal Time			P	V					
	%	h	m		s	Alt.				Az.	h	m			s	h	m	s	m	s	mi
59.0	16	43	59.4	0.665	44	153							18	03	04.2	45	44		
59.3	16	46	09.9	0.668	44	155							18	05	12.3	45	43		
53.3	16	37	51.1	0.617	45	148							17	56	11.2	42	45		
61.7	16	45	58.7	0.687	43	155							18	05	15.7	46	45		
55.6	16	43	28.3	0.637	45	153							18	02	07.4	43	42		
59.0	16	42	11.2	0.665	44	152							18	01	18.7	45	46		
....	..	..	..	..	..	..							17	29	33.8	82	110		
....	..	..	..	..	..	..							17	36	42.9	84	107		
....	..	..	..	..	..	..							17	36	34.9	84	107		
85.9	16	30	02.2	0.882	3	111							17	32	17.6	81	107		
79.5	16	07	37.1	0.831	23	121							17	21	11.2	60	95		
79.6	16	07	43.9	0.831	24	121							17	21	20.5	60	95		
75.3	16	04	36.9	0.797	24	119							17	17	39.7	58	96		
75.6	16	04	53.9	0.799	24	119							17	18	01.7	59	95		
72.4	16	04	32.6	0.775	25	120							17	18	00.2	57	94		
71.4	16	02	52.6	0.767	24	119							17	15	45.3	57	95		
70.6	16	03	16.6	0.760	25	119							17	16	25.9	56	94		
72.0	16	04	02.1	0.771	25	119							17	17	19.1	57	94		
73.8	16	00	49.4	0.785	21	116							17	12	20.5	58	99		
71.0	16	32	41.0	0.762	38	142							17	52	10.7	52	63		
67.6	16	35	31.6	0.735	40	145							17	55	09.2	50	58		
80.7	16	00	49.3	0.840	17	114							17	10	41.0	62	103		
77.9	16	00	56.2	0.818	19	115							17	11	40.4	61	101		
85.2	16	04	19.1	0.876	17	116							17	14	51.6	64	102		
75.5	16	00	09.4	0.799	20	115							17	10	58.6	59	101		
77.5	15	59	59.5	0.815	18	115							17	10	15.2	61	102		
77.1	15	59	08.8	0.811	18	114							17	09	00.4	61	103		
93.0	16	05	27.6	0.937	12	113							17	13	23.3	69	107		
84.0	16	02	17.7	0.866	16	114							17	12	00.2	64	104		
80.7	16	02	45.2	0.840	19	116							17	13	45.7	62	101		
93.3	16	07	26.3	0.939	14	115							17	16	38.4	68	105		
86.7	16	02	18.4	0.888	14	113							17	10	58.5	66	106		
76.7	15	59	05.3	0.809	18	114							17	09	00.5	60	103		
77.6	15	59	30.4	0.815	18	114							17	09	27.5	61	103		
85.4	16	01	46.2	0.878	14	113							17	10	37.4	65	106		
77.8	15	59	51.5	0.818	18	114							17	09	58.5	61	103		
86.4	16	02	03.8	0.885	14	113							17	10	41.5	65	106		
85.5	16	01	29.3	0.878	14	113							17	10	04.6	65	106		
75.6	15	59	37.7	0.800	19	115							17	10	09.2	60	101		
88.3	16	03	51.1	0.900	14	114							17	12	55.4	66	105		
77.5	16	00	23.4	0.815	19	115							17	10	52.7	61	102		
74.1	15	58	35.2	0.788	19	114							17	08	48.8	59	102		
78.1	15	59	38.4	0.819	17	114							17	09	32.5	61	103		
86.4	16	01	54.1	0.885	14	113							17	10	25.4	65	106		
78.3	15	58	48.6	0.821	16	113							17	08	05.6	61	104		
85.4	16	01	33.9	0.877	14	113							17	10	15.5	65	106		
84.5	16	00	55.7	0.870	14	113							17	09	31.7	65	106		
85.5	16	01	28.2	0.878	14	113							17	10	03.1	65	106		
86.9	16	03	01.3	0.889	15	114							17	12	07.9	65	105		
89.5	16	03	28.5	0.909	13	113							17	11	45.2	67	107		
78.2	16	00	26.2	0.821	18	115							17	10	47.9	61	102		
88.4	16	23	01.3	0.900	27	131							17	39	24.7	63	85		
85.6	16	21	49.0	0.879	28	131							17	38	29.7	61	85		
87.5	16	22	56.2	0.894	28	131							17	39	28.9	62	85		
87.6	16	17	24.1	0.895	25	127							17	32	35.0	63	90		
84.3	16	21	14.6	0.868	29	130							17	38	02.3	61	84		
86.2	16	21	05.5	0.884	28	130							17	37	30.4	62	86		

LOCAL CIRCUMSTANCES

Geographic Locations	First Contact		Second Contact	
	Latitude	Longitude	Universal Time	P V
CONNECTICUT				
Bridgeport	+41 10.8	+ 73 11.4	16 01 21.6	266 281
Danbury, <i>West. Conn. St. Coll. Obs.</i>	+41 24.0	+ 73 26.7	16 00 59.4	266 281
Hartford	+41 46.2	+ 72 40.8	16 02 44.8	265 280
Middletown, <i>Van Vleck Obs., Wesleyan Univ.</i>	+41 33.3	+ 72 39.5	16 02 39.6	266 280
New Haven, <i>Yale Univ. Obs.</i>	+41 19.0	+ 72 55.5	16 01 58.7	266 281
Stamford	+41 03.2	+ 73 32.4	16 00 34.6	266 282
DELAWARE				
Dover	+39 09.0	+ 75 33.0	15 55 12.8	267 287
Wilmington, <i>Mt. Cuba Astron. Obs.</i>	+39 47.1	+ 75 38.0	15 55 29.7	266 286
DISTRICT OF COLUMBIA				
Washington, <i>U. S. Naval Obs.</i>	+38 55.3	+ 77 03.9	15 51 58.0	266 288
FLORIDA				
Bronson, <i>Rosemary Hill Obs.</i>	+29 23.9	+ 82 35.2	15 33 36.5	275 313
Daytona Beach	+29 12.7	+ 81 01.2	15 37 01.4	276 312
Gainesville	+29 39.6	+ 82 19.8	15 34 19.0	275 313
Jacksonville	+30 19.7	+ 81 39.7	15 36 10.1	274 310
Key West	+24 33.5	+ 81 48.2	15 33 48.3	283 325
Miami	+25 46.6	+ 80 11.5	15 37 58.7	282 320
Old Town, <i>Univ. of Fla. Radio Obs.</i>	+29 31.8	+ 83 01.9	15 32 43.1	275 313
Orlando	+28 32.7	+ 81 22.6	15 35 54.0	277 314
Richmond, <i>Branch of U. S. Naval Obs.</i>	+25 36.8	+ 80 22.9	15 37 28.6	282 321
Tallahassee	+30 26.7	+ 84 16.9	15 30 41.5	273 312
Tampa	+27 57.0	+ 82 27.4	15 33 10.4	277 317
West Palm Beach	+26 43.0	+ 80 03.2	15 38 28.7	280 318
GEORGIA				
Atlanta, <i>Fernbank Science Center</i>	+33 46.6	+ 84 19.1	15 33 16.5	269 305
Augusta	+33 28.3	+ 81 58.0	15 37 40.6	270 304
Columbus	+32 28.1	+ 84 59.4	15 30 51.4	270 308
Decatur, <i>Bradley Obs., Agnes Scott Coll.</i>	+33 55.9	+ 84 17.7	15 33 27.5	269 304
Macon	+32 50.2	+ 83 37.6	15 33 49.4	270 306
Savannah	+32 04.7	+ 81 05.6	15 38 30.0	272 306
IDAHO				
Ashton	+44 04.0	+111 29.0	15 14 31.0	255 297
Boise	+43 37.1	+116 12.0	15 11 03.3	256 300
Bonnors Ferry	+48 41.0	+116 19.0	15 19 34.0	252 290
Coeur d'Alene	+47 40.0	+116 46.0	15 17 34.3	253 292
Council	+44 44.0	+116 27.0	15 12 45.5	255 298
Grangeville	+45 56.0	+116 07.0	15 14 56.2	254 295
Hailey	+43 31.0	+114 19.0	15 11 53.6	256 299
Idaho Falls	+43 30.0	+112 01.0	15 13 14.9	256 299
Kamiah	+46 14.0	+116 01.0	15 15 29.9	254 295
Kellogg	+47 33.0	+116 06.0	15 17 42.4	253 292
Lewiston	+46 25.0	+117 00.0	15 15 18.9	254 295
McCall	+44 55.0	+116 06.0	15 13 14.2	255 297
Moscow	+46 44.0	+117 00.0	15 15 51.1	253 294
Payette	+44 05.0	+116 56.0	15 11 27.0	256 299
Pocatello	+42 52.4	+112 27.0	15 11 57.8	256 300
St. Maries	+47 17.0	+116 34.0	15 17 00.5	253 293
Salmon	+45 11.0	+113 55.0	15 14 52.5	254 296
Sandpoint	+48 16.0	+116 33.0	15 18 43.2	252 291
Twin Falls	+42 33.0	+114 29.0	15 10 14.8	257 301
Wallace	+47 28.0	+115 55.0	15 17 39.5	253 292
ILLINOIS				
Bloomington	+40 28.9	+ 88 59.6	15 32 43.7	261 294
Champaign	+40 07.1	+ 88 14.8	15 33 23.9	261 294
Chicago	+41 52.5	+ 87 38.4	15 36 31.3	260 290
Danville, <i>Vermilion R. Obs., Univ. of Ill.</i>	+40 03.6	+ 87 33.9	15 34 22.9	261 294
Decatur	+39 50.7	+ 88 56.8	15 31 59.6	261 295
Evanston, <i>Dearborn Obs., Northwestern U.</i>	+42 03.5	+ 87 40.5	15 36 42.1	260 290
Moline	+41 30.5	+ 90 30.8	15 31 51.8	259 293
Oakland, <i>Prairie Obs., Univ. of Ill.</i>	+39 42.1	+ 88 03.2	15 33 11.0	262 295
Peoria	+40 41.7	+ 89 35.6	15 32 06.9	260 294
Rockford	+42 16.1	+ 89 05.8	15 34 53.2	259 291

LOCAL CIRCUMSTANCES

Obscuration	Maximum Eclipse				Sun's		Third Contact				Fourth Contact				Duration	Width of Path				
	Universal Time			Magnitude			Universal Time			P	V	Universal Time					P	V		
	%	h	m		s	Alt.	Az.	h	m			s	°	°	h	m			s	°	°	m	s	mi
60.7	17	17	29.5	0.679	40	184							18	32	33.2	46	25			
61.6	17	17	11.9	0.686	40	183							18	32	23.8	46	26			
61.5	17	18	47.5	0.686	39	185							18	33	38.0	46	26			
60.9	17	18	41.1	0.681	40	185							18	33	30.4	46	25			
60.7	17	18	03.2	0.679	40	184							18	32	59.6	46	25			
60.8	17	16	46.9	0.680	40	183							18	32	00.4	46	26			
58.8	17	11	38.4	0.664	42	179							18	27	41.1	44	26			
60.5	17	12	01.4	0.677	42	179							18	28	10.0	45	27			
60.2	17	08	38.1	0.675	42	176							18	25	21.4	45	29			
43.6	16	47	03.2	0.535	50	158							18	02	59.0	36	29			
41.2	16	50	03.4	0.514	50	162							18	05	04.0	34	24			
44.0	16	47	55.1	0.538	50	159							18	03	54.4	36	28			
44.8	16	50	08.6	0.546	49	161							18	06	14.2	36	27			
30.5	16	42	16.1	0.415	54	155							17	53	09.0	27	22			
31.5	16	47	20.9	0.425	54	160							17	58	35.6	28	18			
44.5	16	46	18.7	0.543	49	157							18	02	31.7	36	30			
40.0	16	48	27.5	0.503	51	160							18	03	09.1	33	25			
31.3	16	46	43.6	0.424	54	160							17	57	54.8	28	18			
48.4	16	44	57.7	0.576	48	156							18	02	12.6	39	35			
39.8	16	45	25.8	0.501	51	157							18	00	12.8	33	27			
33.7	16	48	52.7	0.445	53	162							18	01	04.1	29	19			
56.7	16	49	08.4	0.647	45	158							18	07	42.7	43	38			
53.1	16	53	23.7	0.616	46	163							18	11	05.3	41	32			
54.3	16	46	10.3	0.626	46	156							18	04	31.7	42	38			
57.1	16	49	22.7	0.649	45	159							18	07	59.0	44	38			
53.6	16	49	19.6	0.620	46	159							18	07	24.1	42	35			
48.5	16	53	28.0	0.577	48	164							18	10	13.9	39	28			
98.4	16	21	56.9	0.981	21	127							17	35	13.3	69	94			
98.4	16	16	29.3	0.982	18	122							17	27	53.3	70	99			
98.7	16	24	43.0	0.984	16	124							17	35	00.7	74	99			
99.9	16	22	38.2	0.997	16	123							17	33	01.3	73	99			
100.0	16	18	05.0	0.999	17	122							17	29	12.2	71	100			
100.0	16	20	21.8	1.037	17	123	16	21	36.1	244	281		17	31	23.5	71	99	2	28.6	183
98.0	16	18	07.7	0.978	19	123							17	30	20.8	69	97			
97.5	16	20	28.1	0.974	21	126							17	33	38.5	68	95			
100.0	16	20	57.0	1.037	17	123	16	22	11.9	256	292		17	31	57.2	72	99	2	29.8	184
100.0	16	23	02.4	0.999	17	124							17	33	42.5	73	99			
100.0	16	20	21.9	1.037	16	122	16	21	33.4	268	304		17	30	56.4	72	100	2	23.0	183
100.0	16	18	42.2	1.037	17	122	16	19	13.4	187	225		17	29	56.3	71	99	1	02.4	180
100.0	16	20	53.2	1.037	16	123	16	21	57.2	283	319		17	31	23.7	72	100	2	08.0	184
99.3	16	16	34.7	0.990	17	121							17	27	35.8	70	100			
96.5	16	19	00.2	0.965	21	125							17	32	06.4	68	95			
100.0	16	22	10.9	1.037	16	123	16	22	47.2	314	349		17	32	44.0	73	99	1	12.6	185
100.0	16	21	14.1	1.038	19	125	16	21	52.2	192	228		17	33	18.2	70	97	1	16.2	184
99.2	16	23	49.3	0.989	16	124							17	34	08.3	73	99			
96.3	16	16	23.9	0.963	19	123							17	28	41.0	68	98			
100.0	16	23	04.1	1.037	17	124	16	23	25.9	326	0		17	33	49.7	73	99	0	43.5	186
77.6	16	48	47.3	0.815	38	155							18	08	09.2	55	55			
76.1	16	49	38.4	0.803	38	156							18	09	02.2	54	53			
79.3	16	52	45.4	0.828	37	158							18	11	45.9	56	54			
75.2	16	50	45.7	0.796	38	157							18	10	07.3	54	52			
76.2	16	48	05.4	0.803	38	154							18	07	33.7	54	54			
79.7	16	52	54.5	0.832	37	158							18	11	52.4	56	54			
81.3	16	47	28.6	0.844	36	153							18	06	37.6	57	59			
74.9	16	49	28.5	0.794	39	156							18	08	55.4	53	52			
78.7	16	48	01.4	0.823	37	154							18	07	21.4	55	56			
81.6	16	50	45.7	0.846	36	156							18	09	43.5	57	57			

LOCAL CIRCUMSTANCES

Geographic Locations	First Contact						Second Contact								
	Latitude		Longitude		Universal Time		P	V	Universal Time		P	V			
	°	'	°	'	h	m	s	°	'	h	m	s	°	'	s
ILLINOIS (Cont.)															
Springfield	+39	48.0	+ 89	38.9	15	30	53.2	261	296						
Urbana, <i>Obs. of Univ. of Ill.</i>	+40	06.3	+ 88	13.5	15	33	24.9	261	294						
INDIANA															
Bloomington, <i>Kirkwood Obs., Univ. of Ind.</i>	+39	09.9	+ 86	31.3	15	34	58.5	263	295						
Brooklyn, <i>Goethe Link Obs., Univ. of Ind.</i>	+39	33.0	+ 86	23.7	15	35	37.9	262	294						
Evansville	+37	58.3	+ 87	34.4	15	31	52.7	263	298						
Fort Wayne	+41	04.4	+ 85	08.4	15	39	26.9	261	290						
Greencastle, <i>McKim Obs., DePauw Univ.</i>	+39	38.8	+ 86	51.1	15	35	00.5	262	294						
Indianapolis	+39	46.1	+ 86	09.8	15	36	15.8	262	294						
Lafayette	+40	25.2	+ 86	53.7	15	35	52.1	261	293						
Muncie	+40	11.5	+ 85	23.3	15	38	01.1	262	292						
South Bend	+41	40.6	+ 86	15.0	15	38	24.2	260	290						
Terre Haute	+39	28.1	+ 87	24.4	15	33	54.8	262	295						
IOWA															
Cedar Rapids	+41	58.0	+ 91	39.9	15	30	53.7	259	293						
Davenport	+41	31.3	+ 90	34.6	15	31	47.6	259	293						
Des Moines, <i>Drake Univ. Mun. Obs.</i>	+41	35.7	+ 93	41.2	15	27	42.5	259	294						
Dubuque	+42	30.2	+ 90	40.5	15	32	58.8	258	291						
Iowa City	+41	39.6	+ 91	31.9	15	30	39.4	259	293						
Riverside, <i>Obs. of Univ. of Iowa</i>	+41	30.9	+ 91	33.6	15	30	25.3	259	293						
Sioux City	+42	29.8	+ 96	24.5	15	25	40.0	257	294						
Waterloo	+42	29.7	+ 92	20.3	15	30	43.7	258	292						
KANSAS															
Dodge City	+37	45.3	+100	01.2	15	14	43.8	262	305						
Lawrence, <i>Obs. of Univ. of Kansas</i>	+38	57.6	+ 95	15.0	15	22	02.6	261	300						
Salina	+38	50.1	+ 97	36.5	15	18	58.7	261	302						
Topeka	+39	03.3	+ 95	40.4	15	21	38.4	261	300						
Wichita	+37	41.5	+ 97	20.3	15	17	43.7	262	304						
KENTUCKY															
Ashland	+38	28.6	+ 82	38.4	15	40	54.0	265	294						
Bowling Green	+36	59.3	+ 86	27.1	15	32	37.8	265	299						
Lexington	+38	02.8	+ 84	29.8	15	37	08.8	264	296						
Louisville, <i>Obs. of Univ. of Louisville</i>	+38	12.8	+ 85	45.6	15	35	09.3	264	296						
Paducah	+37	05.2	+ 88	35.9	15	29	11.9	264	301						
LOUISIANA															
Baton Rouge, <i>Obs. of Univ. of La.</i>	+30	24.7	+ 91	10.7	15	18	02.3	271	317						
Clinton, <i>Branch of Obs. of Univ. of La.</i>	+30	48.1	+ 90	58.1	15	18	44.2	271	316						
New Orleans	+29	56.9	+ 90	04.2	15	19	29.0	272	317						
Shreveport	+32	30.8	+ 93	45.0	15	16	09.7	268	314						
MAINE															
Augusta	+44	18.9	+ 69	46.5	16	09	50.0	264	274						
Bangor	+44	48.2	+ 68	46.3	16	11	58.3	264	272						
Brunswick, <i>Bowdoin Coll. Obs.</i>	+43	54.6	+ 69	57.8	16	09	16.1	265	274						
Orono, <i>Obs. of Univ. of Maine</i>	+44	54.0	+ 68	40.1	16	12	12.6	264	272						
Portland	+43	39.6	+ 70	15.3	16	08	34.7	265	275						
MARYLAND															
Baltimore	+39	17.4	+ 76	36.7	15	53	09.6	266	287						
Chesapeake Beach	+38	39.6	+ 76	32.2	15	52	50.5	267	288						
College Park, <i>Obs. of Univ. of Md.</i>	+39	00.1	+ 76	57.3	15	52	15.0	266	288						
Derwood, <i>Carnegie Inst. of Washington</i>	+39	07.3	+ 77	09.1	15	51	56.9	266	288						
Greenbelt, <i>Goddard Obs.</i>	+39	01.2	+ 76	49.6	15	52	31.4	266	288						
Riverside, <i>Md. Pt. Obs., Naval Res. Lab.</i>	+38	22.4	+ 77	14.0	15	51	12.4	267	290						
MASSACHUSETTS															
Amherst, <i>Amherst Coll. Obs.</i>	+42	21.9	+ 72	31.5	16	03	25.1	265	279						
Boston, <i>Boston Univ. Obs.</i>	+42	21.0	+ 71	06.4	16	06	15.1	266	278						
Brockton	+42	05.0	+ 71	01.4	16	06	14.7	266	278						
Cambridge, <i>Harvard Coll. Obs.</i>	+42	22.8	+ 71	07.8	16	06	11.3	266	278						
Hamilton, <i>Sagamore Hill Radio Obs., USAF</i>	+42	37.9	+ 70	48.9	16	06	56.9	266	277						
Harvard, <i>Agassiz Sta. of Harvard Obs.</i>	+42	30.2	+ 71	33.5	16	05	24.3	265	278						
Lawrence	+42	42.3	+ 71	10.1	16	06	17.3	265	277						
Lowell	+42	38.4	+ 71	19.2	16	05	57.1	265	277						
Nantucket, <i>Maria Mitchell Obs.</i>	+41	16.8	+ 70	06.3	16	07	44.5	267	278						
New Bedford	+41	38.2	+ 70	55.7	16	06	12.5	267	279						

LOCAL CIRCUMSTANCES

Obscuration	Maximum Eclipse			Magnitude	Sun's		Third Contact			Fourth Contact			Duration	Width of Path				
	Universal Time				Alt.	Az.	Universal Time			P	V	Universal Time			P	V		
	%	h	m				s	h	m			s					h	m	s
76.8	16	46	49.1	0.808	38	153				18	06	18.8	55	56				
76.0	16	49	39.7	0.802	38	156				18	09	03.5	54	53				
72.1	16	51	32.9	0.771	40	158				18	10	55.3	52	49				
72.9	16	52	13.6	0.777	39	159				18	11	32.6	52	49				
70.5	16	48	12.8	0.758	40	155				18	07	47.5	51	50				
74.9	16	56	10.4	0.794	39	162				18	15	05.8	53	48				
73.6	16	51	31.7	0.783	39	158				18	10	53.0	53	50				
73.1	16	52	53.6	0.779	39	159				18	12	09.2	52	49				
75.3	16	52	21.5	0.797	38	158				18	11	36.2	54	51				
73.2	16	54	45.2	0.780	39	161				18	13	51.2	52	47				
77.4	16	54	54.7	0.813	38	160				18	13	51.1	55	51				
73.7	16	50	20.0	0.784	39	157				18	09	45.8	53	51				
83.3	16	46	08.8	0.860	35	151				18	05	08.2	58	61				
81.4	16	47	23.2	0.845	36	153				18	06	32.0	57	59				
84.3	16	42	23.4	0.867	34	148				18	01	18.7	59	65				
83.5	16	48	26.0	0.862	35	153				18	07	19.3	58	60				
82.5	16	45	58.7	0.854	35	151				18	05	03.3	58	61				
82.3	16	45	44.9	0.852	35	151				18	04	51.5	58	61				
88.2	16	39	20.3	0.899	32	145				17	57	37.8	61	71				
85.0	16	45	43.3	0.873	34	151				18	04	31.5	59	63				
80.6	16	27	03.8	0.839	32	136				17	45	23.2	58	76				
79.9	16	36	17.6	0.833	35	144				17	55	31.4	57	67				
81.4	16	32	21.1	0.845	34	140				17	51	09.8	58	71				
80.4	16	35	44.5	0.837	35	143				17	54	53.3	57	68				
78.6	16	31	08.3	0.823	34	140				17	50	07.2	57	70				
66.1	16	57	50.2	0.723	42	165				18	16	30.6	48	40				
67.0	16	49	03.2	0.730	42	157				18	08	30.6	49	46				
67.3	16	53	55.4	0.732	41	161				18	13	02.3	49	43				
69.1	16	51	48.0	0.747	41	159				18	11	08.1	50	46				
69.5	16	45	15.1	0.750	40	153				18	04	56.4	51	51				
55.8	16	31	29.8	0.638	43	143				17	50	00.8	44	53				
56.5	16	32	26.0	0.645	43	143				17	51	06.4	44	53				
53.5	16	32	56.2	0.619	44	144				17	51	10.9	42	50				
63.4	16	29	47.3	0.701	40	140				17	48	55.3	48	61				
63.9	17	25	08.9	0.706	37	190				18	38	37.1	48	25				
63.8	17	26	59.2	0.705	36	192				18	39	58.1	48	25				
63.2	17	24	38.6	0.700	37	190				18	38	12.4	47	25				
64.0	17	27	11.5	0.706	36	192				18	40	07.5	48	25				
62.9	17	24	02.1	0.698	37	189				18	37	44.2	47	25				
60.6	17	09	48.2	0.678	42	177				18	26	21.2	45	28				
58.9	17	09	22.8	0.665	43	177				18	25	50.2	44	27				
60.3	17	08	54.7	0.676	42	176				18	25	35.5	45	29				
60.8	17	08	39.4	0.680	42	176				18	25	25.9	46	29				
60.2	17	09	09.9	0.675	42	176				18	25	47.3	45	28				
59.1	17	07	48.9	0.666	43	175				18	24	33.4	45	28				
62.7	17	19	27.1	0.696	39	185				18	34	14.2	47	26				
60.9	17	21	52.4	0.681	39	188				18	35	57.4	46	24				
60.1	17	21	51.5	0.674	39	188				18	35	52.8	45	23				
61.0	17	21	51.1	0.681	39	188				18	35	56.9	46	24				
61.2	17	22	32.1	0.683	38	188				18	36	29.0	46	24				
61.8	17	21	11.7	0.688	39	187				18	35	30.9	46	25				
61.8	17	21	58.7	0.688	38	188				18	36	06.5	46	25				
61.8	17	21	40.9	0.689	38	187				18	35	53.2	46	25				
56.9	17	22	57.8	0.648	40	189				18	36	23.8	44	20				
58.9	17	21	45.0	0.664	39	188				18	35	41.0	45	22				

LOCAL CIRCUMSTANCES

Geographic Locations			First Contact				Second Contact			
	Latitude	Longitude	Universal Time	P	V	Universal Time	P	V		
	° ' "	° ' "	h m s	°	°	h m s	°	°		
MASSACHUSETTS (Cont.)										
New Salem, Five Coll. Radio Astron. Obs.	+42 23.6	+ 72 20.7	16 03 47.3	265	279					
Northampton, Smith Coll. Obs.	+42 19.0	+ 72 38.3	16 03 10.0	265	279					
Pittsfield	+42 26.9	+ 73 15.2	16 02 03.0	265	279					
South Hadley, Williston Obs., Mt. Holyoke	+42 15.3	+ 72 34.7	16 03 14.8	265	279					
Tyngsboro, Haystack Site, Lincoln Lab.	+42 37.4	+ 71 29.3	16 05 36.7	265	278					
Wellesley, Whitin Obs., Wellesley Coll.	+42 17.6	+ 71 18.3	16 05 47.5	266	278					
Westford, Millstone Radar, Lincoln Lab.	+42 37.0	+ 71 29.5	16 05 36.1	265	278					
Williamstown, Hopkins Obs., Williams Coll.	+42 42.7	+ 73 12.1	16 02 19.4	264	279					
Worcester	+42 15.6	+ 71 48.3	16 04 46.6	265	278					
MICHIGAN										
Ann Arbor, Obs. of Univ. of Michigan	+42 16.8	+ 83 43.8	15 43 07.9	260	287					
Battle Creek	+42 19.0	+ 85 10.8	15 40 51.1	260	288					
Detroit	+42 19.8	+ 83 03.0	15 44 18.2	261	287					
Flint	+43 01.3	+ 83 41.0	15 44 03.4	260	286					
Grand Rapids	+42 58.1	+ 85 40.2	15 40 52.6	259	287					
Jackson	+42 14.7	+ 84 24.4	15 41 59.8	260	288					
Kalamazoo	+42 17.5	+ 85 35.2	15 40 11.0	260	288					
Lake Angelus, McMath-Hulbert Obs.	+42 39.8	+ 83 15.8	15 44 19.6	260	286					
Lansing	+42 44.0	+ 84 33.3	15 42 20.0	260	287					
Mt. Pleasant, Central Mich. Univ.	+43 35.3	+ 84 46.3	15 43 00.7	259	286					
Portage Lake	+42 24.2	+ 83 55.5	15 42 57.4	260	287					
Saginaw	+43 25.9	+ 83 56.1	15 44 08.0	259	285					
MINNESOTA										
Duluth	+46 46.9	+ 92 06.4	15 37 08.8	255	284					
International Falls	+48 36.0	+ 93 24.5	15 38 17.0	253	282					
Minneapolis, Obs. of Univ. of Minn.	+44 58.7	+ 93 14.3	15 33 07.9	256	288					
Rochester	+44 01.4	+ 92 28.1	15 32 43.1	257	289					
Northfield, Goodsell Obs., Carleton Coll.	+44 27.7	+ 93 09.0	15 32 29.4	256	289					
St. Cloud	+45 34.0	+ 94 10.4	15 32 52.1	255	287					
MISSISSIPPI										
Biloxi	+30 23.8	+ 88 53.0	15 21 55.1	272	316					
Jackson	+32 17.9	+ 90 11.1	15 21 26.7	269	312					
Natchez	+31 33.8	+ 91 23.5	15 18 46.4	270	314					
Oxford, Obs. of Univ. of Miss.	+34 22.2	+ 89 31.8	15 24 39.2	267	307					
MISSOURI										
Columbia	+38 57.1	+ 92 19.8	15 25 55.7	261	299					
Fayette, Morrison Obs.	+39 09.0	+ 92 42.0	15 25 40.7	261	299					
Joplin	+37 05.6	+ 94 30.7	15 20 31.7	263	304					
Kansas City	+39 04.9	+ 94 35.4	15 23 03.6	261	300					
St. Joseph	+39 46.0	+ 94 51.0	15 23 39.8	260	299					
St. Louis	+38 37.8	+ 90 12.4	15 28 34.7	262	298					
Springfield	+37 13.1	+ 93 17.5	15 22 20.9	263	303					
MONTANA										
Anaconda	+46 09.0	+112 56.0	15 17 04.9	254	294	16 22 31.7	86	121		
Augusta	+47 29.0	+112 24.0	15 19 41.3	253	291	16 25 28.9	32	65		
Big Sandy	+48 11.0	+110 06.0	15 22 23.4	252	289	16 29 13.6	17	48		
Billings	+45 47.0	+108 30.1	15 19 26.6	254	293					
Bozeman	+45 40.0	+111 00.0	15 17 29.8	254	294	16 24 14.7	126	160		
Butte	+46 01.1	+112 32.2	15 17 06.0	254	294	16 22 46.1	94	129		
Choteau	+47 49.0	+112 10.0	15 20 24.5	252	291	16 26 32.5	15	48		
Circle	+47 27.0	+105 34.0	15 24 31.3	253	289	16 32 41.8	93	122		
Culbertson	+48 09.0	+104 31.0	15 26 33.7	252	287	16 34 54.1	77	104		
Dillon	+45 14.0	+112 38.0	15 15 43.3	254	295	16 22 11.3	143	179		
Eddy	+47 34.0	+115 09.0	15 18 14.2	253	292	16 23 36.7	358	32		
Forsyth	+46 15.0	+106 40.0	15 21 37.7	253	291					
Glasgow	+48 12.0	+106 37.0	15 24 57.2	252	288	16 32 34.6	54	83		
Glendive	+47 08.0	+104 42.0	15 24 42.5	253	289	16 33 37.1	119	147		
Great Falls	+47 30.0	+111 16.0	15 20 26.2	252	291	16 26 32.7	41	73		
Hamilton	+46 15.0	+114 10.0	15 16 31.9	254	294	16 21 27.1	76	111		
Harlem	+48 33.0	+108 47.0	15 23 56.2	252	288	16 31 19.9	11	40		
Havre	+48 34.0	+109 40.0	15 23 20.8	252	288					
Helena	+46 35.6	+112 02.4	15 18 23.3	253	293	16 24 06.5	73	107		
Jordan	+47 20.0	+106 55.0	15 23 15.2	253	290	16 30 52.6	84	114		

LOCAL CIRCUMSTANCES

Obscuration	Maximum Eclipse			Magnitude	Sun's		Third Contact			Fourth Contact			Duration	Width of Path					
	Universal Time				Alt.	Az.	Universal Time			P	V	Universal Time			P	V			
	%	h	m				s	h	m			s	o	o			h	m	s	o	o	m	s	mi
62.6	17	19	46.8	0.694	39	186						18	34	28.9	47	26			
62.7	17	19	13.5	0.696	39	185						18	34	03.8	47	26			
63.8	17	18	15.2	0.705	39	184						18	33	22.8	47	28			
62.5	17	19	17.3	0.694	39	185						18	34	05.8	47	26			
62.0	17	21	23.2	0.690	38	187						18	35	40.5	47	25			
61.0	17	21	30.1	0.681	39	187						18	35	40.9	46	24			
62.0	17	21	22.6	0.690	39	187						18	35	40.1	47	25			
64.4	17	18	30.9	0.709	39	184						18	33	36.8	48	28			
61.5	17	20	37.4	0.686	39	186						18	35	03.4	46	25			
76.0	16	59	54.4	0.802	38	165						18	18	22.6	54	47			
77.7	16	57	26.9	0.815	37	162						18	16	07.4	55	49			
75.4	17	01	08.0	0.797	38	166						18	19	28.0	53	45			
77.6	17	00	44.3	0.815	37	165						18	19	01.7	55	47			
79.6	16	57	18.7	0.831	37	162						18	15	52.9	56	51			
76.7	16	58	42.2	0.808	38	164						18	17	17.2	54	48			
78.1	16	56	43.6	0.818	37	162						18	15	27.4	55	50			
76.4	17	01	05.9	0.805	38	166						18	19	24.2	54	46			
77.9	16	58	57.4	0.817	37	164						18	17	27.0	55	49			
80.0	16	59	28.3	0.834	36	164						18	17	46.3	56	50			
76.5	16	59	41.8	0.806	38	165						18	18	10.3	54	47			
78.8	17	00	43.3	0.824	37	165						18	18	56.9	55	48			
93.1	16	51	19.7	0.937	31	154						18	08	37.3	63	66			
97.1	16	51	34.6	0.970	29	153						18	07	56.9	65	69			
90.6	16	47	26.0	0.918	32	151						18	05	20.5	62	66			
88.2	16	47	26.1	0.898	33	152						18	05	45.1	61	64			
89.6	16	46	55.3	0.909	32	151						18	05	01.6	61	66			
92.5	16	46	45.5	0.932	31	150						18	04	20.6	63	68			
53.4	16	35	49.4	0.619	45	147						17	54	09.1	42	47			
59.5	16	35	58.2	0.670	43	146						17	55	07.1	46	52			
58.9	16	32	42.7	0.664	42	143						17	51	40.2	46	54			
64.0	16	39	59.7	0.706	42	149						17	59	33.7	48	51			
77.4	16	41	08.1	0.813	37	148						18	00	41.0	55	61			
78.2	16	40	46.4	0.819	37	148						18	00	16.2	56	62			
75.1	16	34	55.2	0.795	37	143						17	54	25.1	54	64			
79.6	16	37	32.4	0.831	35	145						17	56	50.8	57	65			
81.3	16	38	03.4	0.844	35	145						17	57	13.1	57	66			
74.7	16	44	22.0	0.792	38	151						18	04	01.3	54	56			
74.3	16	37	09.5	0.789	38	145						17	56	47.3	54	62			
100.0	16	23	47.2	1.038	19	126	16	25	02.6	238	272	17	36	00.7	71	96	2	30.9	187
100.0	16	26	28.7	1.038	19	128	16	27	28.4	292	325	17	38	32.3	72	95	1	59.5	190
100.0	16	29	59.1	1.038	20	131	16	30	44.6	307	337	17	42	37.6	72	92	1	31.0	193
100.0	16	27	59.1	0.999	22	131						17	41	56.0	69	90			
100.0	16	25	01.7	1.038	21	128	16	25	48.7	198	232	17	38	06.4	70	93	1	34.0	189
100.0	16	23	58.6	1.038	20	127	16	25	11.0	230	264	17	36	23.2	71	95	2	24.9	187
100.0	16	27	15.1	1.038	19	128	16	27	57.6	309	341	17	39	17.8	72	95	1	25.1	191
100.0	16	33	59.0	1.039	24	136	16	35	16.1	229	257	17	48	19.8	69	86	2	34.3	194
100.0	16	36	17.2	1.039	24	138	16	37	40.4	245	272	17	50	40.4	70	85	2	46.3	194
100.0	16	22	36.7	1.038	20	126	16	23	02.2	181	216	17	35	10.5	70	95	0	50.9	186
100.0	16	23	56.5	1.037	17	125	16	24	16.3	327	1	17	34	57.8	73	98	0	39.6	188
100.0	16	30	51.0	0.999	23	134						17	45	16.2	69	88			
100.0	16	33	52.7	1.039	22	135	16	35	10.9	269	297	17	47	38.0	70	88	2	36.3	194
100.0	16	34	33.5	1.039	24	137	16	35	29.8	203	231	17	49	16.7	69	85	1	52.7	194
100.0	16	27	40.2	1.038	20	129	16	28	47.7	283	315	17	40	07.7	71	94	2	15.0	191
100.0	16	22	43.6	1.038	18	125	16	24	00.1	249	284	17	34	27.2	71	97	2	33.0	186
100.0	16	31	58.7	1.039	21	133	16	32	37.4	313	342	17	44	55.6	71	91	1	17.5	193
100.0	16	31	02.9	0.999	20	132						17	43	42.3	72	92			
100.0	16	25	24.9	1.038	20	128	16	26	43.3	251	284	17	37	51.5	71	95	2	36.8	189
100.0	16	32	12.8	1.039	23	134	16	33	32.9	238	268	17	46	11.3	70	88	2	40.3	193

LOCAL CIRCUMSTANCES

Geographic Locations			First Contact			Second Contact		
	Latitude	Longitude	Universal Time	P	V	Universal Time	P	V
	° ' "	° ' "	h m s	°	°	h m s	°	°
MONTANA(Cont.)								
Kalispell	+48 12.0	+114 19.0	15 19 47.7	252	291			
Lewistown	+47 04.0	+109 26.0	15 20 56.1	253	291	16 27 36.5	73	105
Livingston	+45 40.0	+110 33.0	15 17 47.9	254	294	16 24 50.1	131	165
Malta	+48 22.0	+107 51.0	15 24 18.1	252	288	16 31 39.8	54	63
Miles City	+46 24.0	+105 48.0	15 22 34.4	253	291			
Missoula	+46 52.0	+114 00.0	15 17 40.6	253	293	16 22 42.3	51	85
Plains	+47 28.0	+114 51.0	15 18 13.9	253	292	16 23 25.6	13	47
Plentywood	+48 46.0	+104 32.0	15 27 35.1	252	286	16 35 51.1	54	80
Roundup	+46 27.0	+108 34.0	15 20 30.8	253	292	16 27 50.2	106	138
Sidney	+47 42.0	+104 10.0	15 26 06.4	252	288	16 34 48.7	99	126
Utica	+46 58.0	+110 06.0	15 20 18.1	253	291	16 26 43.9	72	104
Virginia City	+45 18.0	+111 56.0	15 16 16.4	254	295	16 23 07.0	148	182
Winnett	+47 00.0	+108 21.0	15 21 36.2	253	291	16 28 44.0	84	116
Wolf Point	+48 05.0	+105 40.0	15 25 30.4	252	288	16 33 26.2	68	96
NEBRASKA								
Beatrice	+40 15.0	+ 96 45.0	15 21 59.8	259	299			
Grand Island	+40 56.0	+ 98 20.0	15 21 09.2	259	298			
Lincoln	+40 49.0	+ 96 42.3	15 22 51.8	259	297			
Omaha	+41 15.7	+ 95 56.2	15 24 25.6	259	296			
NEVADA								
Incline Lake, <i>MacLean Obs.</i>	+39 17.7	+119 55.7	15 02 42.8	261	310			
Las Vegas	+36 10.3	+115 08.6	15 00 29.4	263	315			
Reno	+39 31.5	+119 48.7	15 03 06.4	260	309			
NEW HAMPSHIRE								
Concord	+43 12.4	+ 71 32.4	16 05 50.5	265	277			
Hanover, <i>Shattuck Obs., Dartmouth Coll.</i>	+43 42.3	+ 72 17.0	16 04 43.2	264	277			
Manchester	+42 59.5	+ 71 27.7	16 05 52.3	265	277			
Portsmouth	+43 04.5	+ 70 45.4	16 07 17.8	265	276			
NEW JERSEY								
Atlantic City	+39 21.5	+ 74 25.9	15 57 39.8	267	285			
Newark	+40 44.2	+ 74 10.3	15 59 05.9	266	283			
Princeton, <i>Princeton Univ. Obs.</i>	+40 20.8	+ 74 38.9	15 57 52.6	266	284			
Trenton	+40 13.2	+ 74 46.2	15 57 32.6	266	284			
NEW MEXICO								
Albuquerque	+35 05.0	+106 39.1	15 04 42.7	264	314			
Capilla Peak, <i>Obs. of Univ. of New Mex.</i>	+34 41.8	+106 24.3	15 04 24.1	265	315			
Gallup	+35 31.5	+108 44.5	15 03 38.0	264	314			
Las Cruces, <i>Blue Mesa Obs. of N. M. St. U.</i>	+32 29.5	+107 09.9	15 01 04.5	267	320			
Las Cruces, <i>Tortugas Mt. Obs. of N. M. St. U.</i>	+32 17.6	+106 41.8	15 01 14.2	267	320			
Santa Fe	+35 41.2	+105 56.2	15 06 06.3	263	312			
Socorro, <i>Joint Obs. for Cometary Res.</i>	+33 59.1	+107 11.3	15 02 50.7	265	316			
Sunspot, <i>Sacramento Peak Obs.</i>	+32 47.2	+105 49.2	15 02 32.5	267	319			
Very Large Array	+34 04.7	+107 37.1	15 02 37.9	265	317			
NEW YORK								
Albany, <i>Dudley Obs.</i>	+42 39.2	+ 73 46.8	16 01 10.4	264	279			
Binghamton	+42 06.0	+ 75 54.8	15 56 42.5	264	282			
Bristol Springs, <i>C. E. Kenneth Mees Obs.</i>	+42 42.0	+ 77 24.5	15 54 26.7	262	282			
Buffalo	+42 52.9	+ 78 52.4	15 51 59.9	262	283			
Central Islip	+40 47.4	+ 73 12.0	16 01 05.9	266	282			
Geneva, <i>Smith Obs.</i>	+42 52.8	+ 77 00.3	15 55 20.1	262	281			
Grafton, <i>Sampson Sta., R. P. I.</i>	+42 47.6	+ 73 27.0	16 01 54.1	264	279			
Ithaca, <i>Fuertes Obs., Cornell Univ.</i>	+42 27.2	+ 76 28.6	15 55 56.6	263	282			
New York, <i>Columbia Univ. Obs.</i>	+40 48.6	+ 73 57.5	15 59 34.6	266	282			
Newstead, <i>Radio Phys. Obs. of Cornell Univ.</i>	+42 59.4	+ 78 33.7	15 52 38.9	262	282			
Niagara Falls	+43 05.6	+ 79 03.4	15 51 52.7	261	283			
Poughkeepsie, <i>Vassar Coll. Obs.</i>	+41 41.3	+ 73 53.8	16 00 17.2	265	281			
Rochester	+43 09.7	+ 77 36.4	15 54 30.1	262	281			
Syracuse, <i>Syracuse Univ. Obs.</i>	+43 02.2	+ 76 08.3	15 57 02.9	263	281			
Troy, <i>Obs. of R. P. I.</i>	+42 43.8	+ 73 40.8	16 01 25.1	264	279			
Utica	+43 06.2	+ 75 13.6	15 58 46.8	263	280			
Vesper, <i>Syracuse Astron. Soc.</i>	+42 47.7	+ 76 11.2	15 56 45.5	263	281			
White Plains	+41 02.0	+ 73 45.8	16 00 07.0	266	282			

LOCAL CIRCUMSTANCES

Obscuration	Maximum Eclipse			Magnitude	Sun's		Third Contact			Fourth Contact			Duration		Width of				
	Universal Time				Alt.	Az.	Universal Time			P	V	Universal Time			P	V	m	s	mi
	%	h	m				s	h	m			s	o	o					
99.6	16	25	45.6	0.993	18	126						17	36	55.1	73	97			
100.0	16	28	56.9	1.039	21	131	16	30	17.2	251	282	17	42	11.0	71	91	2	40.7	192
100.0	16	25	30.8	1.039	21	129	16	26	11.6	192	226	17	38	45.5	70	93	1	21.5	189
100.0	16	32	43.7	1.039	22	134	16	33	47.7	289	318	17	46	02.4	71	89	2	07.9	193
100.0	16	32	07.1	0.999	24	135						17	46	45.8	69	87			
100.0	16	23	53.5	1.038	18	126	16	25	04.7	274	308	17	35	31.8	72	97	2	22.4	187
100.0	16	24	03.6	1.037	17	125	16	24	41.6	312	346	17	35	13.1	72	97	1	16.0	188
100.0	16	37	10.4	1.039	23	138	16	38	29.8	268	295	17	51	18.7	70	85	2	38.7	195
100.0	16	28	57.1	1.039	22	132	16	30	04.0	217	248	17	42	40.5	70	90	2	13.8	192
100.0	16	36	03.1	1.039	24	138	16	37	17.4	223	250	17	50	42.6	69	84	2	28.7	194
100.0	16	28	03.8	1.038	21	130	16	29	23.6	252	284	17	41	05.8	71	92	2	39.7	191
100.0	16	23	26.8	1.038	20	127	16	23	46.7	177	211	17	36	16.0	70	94	0	39.7	187
100.0	16	30	03.2	1.039	22	132	16	31	22.5	239	269	17	43	40.6	70	90	2	38.5	193
100.0	16	34	48.8	1.039	23	136	16	36	11.4	255	283	17	48	53.7	70	87	2	45.2	194
83.8	16	35	42.0	0.864	33	142						17	54	27.6	59	70			
86.4	16	34	14.0	0.884	32	141						17	52	31.6	61	74			
85.0	16	36	33.8	0.873	33	143						17	55	13.1	60	70			
85.4	16	38	22.6	0.876	33	144						17	57	03.9	60	69			
90.0	16	06	11.7	0.914	16	116						17	16	06.0	67	104			
82.5	16	05	35.4	0.854	20	118						17	17	35.5	62	99			
90.5	16	06	40.1	0.917	16	116						17	16	38.1	67	104			
63.5	17	21	38.5	0.702	38	187						18	35	57.8	47	26			
65.6	17	20	41.2	0.719	37	186						18	35	20.5	48	28			
62.9	17	21	38.9	0.697	38	187						18	35	55.9	47	26			
62.2	17	22	53.0	0.691	38	188						18	36	49.3	47	25			
57.9	17	13	52.3	0.656	42	181						18	29	23.2	44	24			
60.9	17	15	25.3	0.681	41	182						18	30	56.1	46	26			
60.6	17	14	16.0	0.678	41	181						18	29	59.0	45	26			
60.4	17	13	56.8	0.677	41	181						18	29	42.7	45	26			
77.8	16	13	38.3	0.817	28	126						17	29	32.2	58	87			
76.8	16	13	21.7	0.809	28	126						17	29	19.7	58	87			
79.6	16	11	39.7	0.831	26	124						17	26	41.4	60	91			
71.6	16	09	01.9	0.768	28	123						17	24	12.9	56	88			
70.9	16	09	20.9	0.762	29	124						17	24	41.0	55	88			
78.9	16	15	30.0	0.826	28	127						17	31	45.7	59	86			
75.3	16	11	15.1	0.798	28	124						17	26	46.1	57	88			
71.8	16	11	14.8	0.770	30	125						17	27	06.4	55	86			
75.7	16	10	51.1	0.801	28	124						17	26	11.0	58	89			
65.0	17	17	28.9	0.714	39	183						18	32	50.3	48	29			
66.4	17	13	23.0	0.725	39	179						18	29	39.4	49	32			
69.6	17	11	15.4	0.751	39	176						18	28	01.8	50	35			
71.8	17	08	52.1	0.769	38	174						18	26	05.0	51	38			
59.8	17	17	11.7	0.672	41	184						18	32	14.1	45	25			
69.5	17	12	05.5	0.751	38	177						18	28	42.1	50	35			
64.9	17	18	08.8	0.714	39	184						18	33	21.4	48	29			
67.9	17	12	40.5	0.738	39	178						18	29	08.3	49	33			
60.8	17	15	51.5	0.680	41	182						18	31	16.4	46	26			
71.7	17	09	29.9	0.768	38	174						18	26	36.1	51	38			
72.5	17	08	44.0	0.774	38	174						18	25	57.9	52	39			
62.8	17	16	36.5	0.697	40	183						18	32	01.6	47	28			
70.9	17	11	16.7	0.762	38	176						18	28	03.2	51	36			
68.8	17	13	42.2	0.745	38	179						18	29	59.0	50	34			
65.1	17	17	42.4	0.715	39	183						18	33	01.0	48	29			
67.9	17	15	18.8	0.737	38	180						18	31	14.5	50	32			
68.3	17	13	26.5	0.741	39	179						18	29	46.0	50	33			
61.1	17	16	22.3	0.682	40	183						18	31	42.2	46	26			

LOCAL CIRCUMSTANCES

Geographic Locations	First Contact						Second Contact									
	Latitude		Longitude		Universal Time			P	V	Universal Time			P	V		
	°	'	°	'	h	m	s	°	'	h	m	s	°	'	°	
NORTH CAROLINA																
Asheville	+35	35.7	+ 82	33.4	15	38	17.3	268	299							
Charlotte	+35	13.7	+ 80	50.8	15	41	21.6	269	299							
Durham	+36	00.0	+ 78	54.8	15	45	56.4	269	296							
Greensboro	+36	04.3	+ 79	47.4	15	44	11.4	268	296							
Raleigh	+35	46.6	+ 78	38.4	15	46	20.7	269	296							
Wilmington	+34	14.2	+ 77	55.4	15	46	50.5	271	293							
Winston-Salem	+35	05.9	+ 80	14.7	15	43	17.3	268	297							
NORTH DAKOTA																
Beach	+46	56.0	+104	01.0	15	24	57.5	253	289							
Bismarck	+46	48.4	+100	47.3	15	27	41.8	253	288							
Bottineau	+48	50.0	+100	28.0	15	31	17.8	252	284	16	41	04.4	100	124		
Fargo	+46	52.5	+ 96	47.3	15	31	53.3	254	286							
Langdon	+48	46.0	+ 98	21.0	15	33	14.8	252	284							
Minot	+48	14.3	+101	17.8	15	29	32.9	252	286	16	39	24.0	115	140		
Mohall	+48	47.0	+101	31.0	15	30	14.5	252	285	16	39	33.2	88	113		
Rolla	+48	52.0	+ 99	36.0	15	32	10.6	252	284	16	42	25.0	113	136		
Williston	+48	09.0	+103	39.0	15	27	17.9	252	287	16	35	59.5	86	113		
OHIO																
Akron	+41	05.0	+ 81	30.7	15	45	34.6	262	288							
Canton	+40	47.8	+ 81	22.6	15	45	31.1	263	288							
Cincinnati, <i>Cincinnati Obs.</i>	+39	08.3	+ 84	25.3	15	38	27.3	263	294							
Cleveland, <i>Warner and Swasey Obs.</i>	+41	32.2	+ 81	34.1	15	45	56.9	262	287							
Columbus	+39	59.8	+ 83	00.7	15	41	49.1	262	291							
Dayton	+39	45.5	+ 84	11.7	15	39	31.5	263	292							
Delaware, <i>Perkins Obs., Ohio Wesleyan Univ.</i>	+40	15.1	+ 83	03.3	15	42	00.9	263	291							
Lima	+40	44.6	+ 84	06.4	15	40	46.2	262	290							
Lorain	+41	28.1	+ 82	10.8	15	44	49.4	262	288							
Montville, <i>Nassau Astron. Station</i>	+41	35.0	+ 81	04.5	15	46	51.1	262	287							
Steubenville	+40	21.7	+ 80	36.9	15	46	26.9	263	289							
Toledo, <i>Ritter Obs.</i>	+41	39.7	+ 83	36.8	15	42	37.4	261	288							
Youngstown	+41	06.0	+ 80	39.0	15	47	06.9	263	287							
Zanesville	+39	56.3	+ 82	00.5	15	43	31.4	263	290							
OKLAHOMA																
Enid	+36	23.7	+ 97	52.5	15	15	21.4	263	307							
Norman, <i>Obs. of Univ. of Okla.</i>	+35	12.1	+ 97	26.6	15	14	21.1	264	309							
Oklahoma City	+35	28.4	+ 97	31.1	15	14	36.1	264	309							
Tulsa	+36	09.2	+ 95	59.6	15	17	22.9	264	307							
OREGON																
Albany	+44	38.0	+123	07.0	15	09	52.4	256	300	16	12	21.5	157	197		
Astoria	+46	12.0	+123	50.0	15	12	13.8	254	297	16	13	31.9	58	97		
Baker	+44	46.0	+117	50.0	15	12	08.5	255	298	16	16	29.6	144	182		
Corvallis	+44	34.0	+123	16.0	15	09	43.1	256	300							
The Dalles	+45	36.0	+121	10.0	15	12	08.2	255	298	16	14	24.1	85	124		
Elgin	+45	34.0	+117	56.0	15	13	25.9	254	297	16	16	58.5	92	130		
Eugene	+44	03.0	+123	04.0	15	08	56.8	256	301							
La Grande	+45	21.0	+118	05.0	15	12	59.9	255	297	16	16	34.4	102	140		
Madras	+44	39.0	+121	08.0	15	10	34.7	256	300	16	13	41.4	149	189		
Pendleton	+45	40.0	+118	46.0	15	13	13.4	254	297	16	16	24.5	85	123		
Portland	+45	32.0	+122	40.0	15	11	29.8	255	298	16	13	12.4	88	128		
St. Helens	+45	50.0	+122	48.0	15	11	57.0	255	298	16	13	34.9	74	114		
Salem	+44	57.0	+123	01.0	15	10	25.3	255	300	16	12	18.6	121	161		
PENNSYLVANIA																
Altoona	+40	30.9	+ 78	24.0	15	50	41.2	264	287							
Erie	+42	07.3	+ 80	05.0	15	49	07.9	262	285							
Harrisburg	+40	15.7	+ 76	53.0	15	53	22.9	265	286							
Haverford, <i>Strawbridge Obs., Haverford Coll.</i>	+40	00.7	+ 75	18.2	15	56	19.3	266	285							
Johnstown	+40	19.6	+ 78	55.1	15	49	32.6	264	287							
Kutztown, <i>Obs. of St. Coll.</i>	+40	30.9	+ 75	47.1	15	55	43.8	265	284							
Lancaster	+40	02.4	+ 76	18.5	15	54	20.2	266	286							
Philadelphia, <i>Flower and Cook Obs.</i>	+40	00.0	+ 75	28.6	15	55	57.9	266	285							
Philadelphia, <i>Students' Obs., Univ. of Pa.</i>	+39	57.0	+ 75	11.0	15	56	31.3	266	285							
Pittsburgh, <i>Allegheny Obs. of the Univ.</i>	+40	29.0	+ 80	01.3	15	47	38.8	264	288							

LOCAL CIRCUMSTANCES

Observation	Maximum Eclipse			Sun's		Third Contact			Fourth Contact			Duration		Width of
	Universal Time			Alt.		Universal Time			Universal Time			m s		Path
	%	h	m	s	Magnitude	o	Az.	o	h	m	s	P	V	mi
59.1	16	54	44.9	0.666	44	163			18	13	11.1	45	36	
56.1	16	57	38.6	0.641	45	166			18	15	23.6	43	31	
55.5	17	02	15.0	0.636	45	171			18	19	21.4	42	28	
56.8	17	00	37.7	0.647	45	169			18	18	07.8	43	30	
54.6	17	02	32.8	0.629	45	171			18	19	28.4	42	27	
49.8	17	02	19.0	0.588	47	172			18	18	24.2	39	23	
57.4	16	59	46.6	0.652	45	168			18	17	28.1	44	31	
100.0	16	35	06.4	0.999	25	137			17	50	05.8	69	84	
98.7	16	39	04.5	0.984	27	142			17	54	57.8	67	80	
100.0	16	42	18.9	1.040	26	143	16	43	33.4	220	244	69	80	2 29.0 194
96.6	16	44	38.6	0.966	29	147			18	01	19.3	65	73	
100.0	16	44	59.5	0.999	27	146			18	00	34.1	68	77	
100.0	16	40	25.5	1.040	26	142	16	41	27.0	206	231	69	81	2 03.0 194
100.0	16	40	54.5	1.040	25	142	16	42	15.8	233	257	69	81	2 42.6 194
100.0	16	43	28.9	1.040	26	144	16	44	32.7	208	230	68	78	2 07.7 194
100.0	16	37	20.6	1.039	24	139	16	38	41.8	235	261	69	84	2 42.3 195
70.8	17	02	35.6	0.761	40	168			18	20	47.8	51	41	
70.0	17	02	33.1	0.754	40	168			18	20	45.2	51	40	
69.7	16	55	18.2	0.752	41	162			18	14	21.2	50	44	
71.9	17	02	56.3	0.770	39	168			18	21	05.5	52	41	
70.1	16	58	47.6	0.755	40	165			18	17	28.7	51	42	
70.9	16	56	24.2	0.761	40	163			18	15	21.4	51	44	
70.7	16	58	59.2	0.760	40	165			18	17	39.2	51	43	
73.0	16	57	38.1	0.779	39	163			18	16	26.8	52	45	
72.5	17	01	47.5	0.774	39	167			18	20	06.1	52	43	
71.5	17	03	51.3	0.766	39	169			18	21	52.8	51	41	
68.1	17	03	29.5	0.739	40	170			18	21	31.2	49	38	
74.5	16	59	28.3	0.791	39	165			18	18	02.6	53	46	
69.8	17	04	08.7	0.753	40	170			18	22	06.8	50	39	
68.8	17	00	32.8	0.745	41	167			18	18	59.5	50	40	
76.1	16	28	24.6	0.803	35	138			17	47	19.2	55	71	
72.9	16	27	22.4	0.778	36	137			17	46	29.3	54	70	
73.6	16	27	38.8	0.783	36	137			17	46	36.7	54	70	
74.1	16	31	07.4	0.787	36	140			17	50	24.5	54	67	
100.0	16	12	30.1	1.036	12	116	16	12	38.6	171	212	72	106	0 17.3 166
100.0	16	14	37.4	1.036	11	116	16	15	43.0	270	309	73	106	2 11.1 171
100.0	16	16	53.9	1.037	16	121	16	17	18.2	182	221	71	101	0 48.6 177
100.0	16	12	17.1	0.999	12	115			17	20	31.6	72	106	
100.0	16	15	33.3	1.036	13	118	16	16	42.5	242	281	72	104	2 18.4 174
100.0	16	18	08.2	1.037	16	121	16	19	17.8	234	272	72	101	2 19.3 179
99.4	16	11	34.1	0.991	12	115			17	19	56.2	71	106	
100.0	16	17	38.8	1.037	16	121	16	18	43.3	224	262	71	101	2 08.9 178
100.0	16	13	59.8	1.036	14	117	16	14	18.1	179	218	72	104	0 36.7 170
100.0	16	17	35.6	1.037	15	120	16	18	46.7	241	279	72	102	2 22.2 178
100.0	16	14	19.6	1.036	12	116	16	15	26.8	239	279	72	105	2 14.4 170
100.0	16	14	44.0	1.036	12	116	16	15	53.2	253	292	73	105	2 18.3 172
100.0	16	13	06.1	1.036	12	116	16	13	53.5	207	247	72	105	1 34.9 167
65.7	17	07	38.2	0.720	41	174			18	24	55.9	48	34	
71.5	17	06	05.9	0.766	39	171			18	23	46.7	51	39	
63.2	17	10	09.4	0.700	41	177			18	26	51.8	47	31	
60.6	17	12	48.8	0.678	41	180			18	28	49.0	45	27	
65.9	17	06	31.6	0.722	41	173			18	24	00.7	48	35	
62.4	17	12	21.2	0.693	41	179			18	28	35.9	46	29	
62.0	17	11	00.6	0.690	41	178			18	27	28.1	46	29	
60.8	17	12	29.3	0.680	41	179			18	28	34.4	46	27	
60.3	17	12	58.8	0.676	41	180			18	28	55.4	45	27	
67.7	17	04	40.9	0.736	40	171			18	22	31.3	49	37	

LOCAL CIRCUMSTANCES

Geographic Locations	First Contact		Second Contact	
	Latitude	Longitude	Universal Time	P V
PENNSYLVANIA (Cont.)				
Reading	+40 20.2	+ 75 55.7	15 55 18.8	265 285
Scranton	+41 24.5	+ 75 39.8	15 56 38.6	264 283
South Bethlehem, Sayre Obs., Lehigh Univ.	+40 36.4	+ 75 23.0	15 56 35.5	265 284
Swarthmore, Sproul Obs., Swarthmore Coll.	+39 54.3	+ 75 21.4	15 56 08.3	266 285
Wilkes-Barre	+41 14.5	+ 75 53.3	15 56 05.0	265 283
York	+39 57.6	+ 76 43.6	15 53 26.9	265 286
RHODE ISLAND				
Providence, Ladd Obs., Brown Univ.	+41 50.3	+ 71 24.0	16 05 21.4	266 279
SOUTH CAROLINA				
Charleston	+32 46.6	+ 79 55.9	15 41 29.0	272 303
Columbia, Melton Mem. Obs., Univ. of S. C.	+33 59.8	+ 81 01.6	15 40 01.0	270 302
Greenville	+34 50.8	+ 82 24.0	15 37 56.2	269 301
Spartanburg	+34 57.1	+ 81 56.1	15 38 56.7	269 300
SOUTH DAKOTA				
Pierre	+44 22.3	+100 20.9	15 24 14.6	255 292
Rapid City	+44 04.8	+103 13.7	15 21 00.4	255 294
Sioux Falls	+43 32.6	+ 96 43.6	15 26 51.5	256 292
TENNESSEE				
Chattanooga	+35 02.7	+ 85 18.5	15 32 37.1	267 303
Knoxville	+35 57.7	+ 83 55.1	15 36 03.8	267 300
Memphis	+35 08.8	+ 90 03.2	15 24 40.1	266 306
Nashville, Dyer Obs., Vanderbilt Univ.	+36 03.1	+ 86 48.3	15 31 00.6	266 302
TEXAS				
Abilene	+32 27.9	+ 99 42.8	15 08 21.5	267 317
Amarillo	+35 12.5	+101 50.1	15 09 22.5	264 312
Austin	+30 16.1	+ 97 44.6	15 08 24.0	270 321
Brownsville	+25 54.1	+ 97 30.0	15 05 02.8	276 331
Corpus Christi	+27 47.9	+ 97 23.8	15 06 36.4	274 327
Dallas	+32 47.2	+ 96 47.6	15 12 17.6	267 315
Edinburg, Obs. of Pan American Coll.	+26 18.4	+ 98 10.4	15 04 26.9	276 331
El Paso	+31 45.6	+106 29.2	15 00 48.6	268 321
Fort Davis, McDonald Obs., Univ. of Texas	+30 40.3	+104 01.3	15 01 49.2	269 323
Fort Davis, Radio Astron. Sta. of Harvard	+30 38.0	+103 57.0	15 01 51.4	269 323
Fort Worth	+32 44.9	+ 97 19.7	15 11 34.0	267 315
Galveston	+29 18.2	+ 94 47.7	15 11 29.3	272 322
Houston	+29 45.4	+ 95 21.6	15 11 05.8	271 321
Laredo	+27 30.4	+ 99 30.5	15 03 42.5	274 328
Lubbock	+33 35.1	+101 50.6	15 07 20.0	266 315
Marshall	+32 33.0	+ 94 23.0	15 15 17.5	268 314
Port Arthur	+29 52.5	+ 93 56.3	15 13 15.5	271 320
San Angelo	+31 27.7	+100 26.1	15 06 25.1	269 319
San Antonio	+29 25.6	+ 98 29.1	15 06 39.2	271 323
Texarkana	+33 25.8	+ 94 02.5	15 16 44.8	267 312
Waco	+31 33.2	+ 97 08.0	15 10 30.2	269 318
Wichita Falls	+33 54.6	+ 98 29.5	15 11 29.5	266 313
UTAH				
Ogden	+41 13.5	+111 58.4	15 09 39.4	258 303
Provo	+40 14.1	+111 39.4	15 08 20.2	259 305
Salt Lake City	+40 45.4	+111 53.4	15 08 59.1	258 304
VERMONT				
Brattleboro	+42 51.1	+ 72 33.8	16 03 38.8	264 278
Burlington	+44 28.6	+ 73 12.8	16 03 30.0	263 276
Montpelier	+44 15.6	+ 72 34.7	16 04 31.4	263 276
VIRGINIA				
Charlottesville, McCormick Obs., U. Va.	+38 02.0	+ 78 31.3	15 48 20.5	267 291
Norfolk	+36 51.2	+ 76 17.4	15 52 05.8	269 292
Richmond	+37 32.3	+ 77 26.2	15 50 09.7	268 291
Roanoke	+37 16.2	+ 79 56.7	15 44 52.4	267 294

LOCAL CIRCUMSTANCES

Obscuration	Maximum Eclipse				Sun's		Third Contact			Fourth Contact			Duration		Width of					
	Universal Time			Magnitude	Alt.	Az.	Universal Time			P	V	Universal Time			P	V	Path			
	%	h	m	s		°	°	h	m	s	°	°	h	m	s	°	°	m	s	mi
62.2		17	11	56.8	0.691	41	178						18	28	15.0	46	29			
64.4		17	13	17.2	0.710	40	179						18	29	29.0	48	30			
62.1		17	13	09.0	0.691	41	180						18	29	13.2	46	28			
60.4		17	12	37.7	0.677	41	179						18	28	39.0	45	27			
64.3		17	12	45.3	0.709	40	179						18	29	03.0	48	30			
62.3		17	10	10.8	0.692	41	177						18	26	49.0	46	30			
60.0		17	21	03.5	0.673	39	187						18	35	15.5	45	23			
48.8		16	56	38.8	0.580	48	167						18	13	10.4	39	26			
53.2		16	55	52.7	0.617	46	165						18	13	22.0	41	30			
57.1		16	54	10.6	0.649	45	163						18	12	24.7	43	35			
56.7		16	55	12.3	0.647	45	164						18	13	18.1	43	34			
94.4		16	36	13.0	0.948	28	140						17	53	05.4	65	78			
95.4		16	31	53.2	0.956	27	136						17	48	03.8	66	83			
90.5		16	40	17.2	0.917	31	145						17	58	12.4	62	72			
61.0		16	48	48.2	0.682	44	157						18	07	53.3	46	42			
61.6		16	52	34.1	0.687	43	161						18	11	26.6	46	39			
66.4		16	40	04.4	0.725	41	149						17	59	45.4	49	53			
65.1		16	47	14.2	0.715	42	155						18	06	42.4	48	46			
67.8		16	19	43.4	0.737	35	132						17	37	41.9	52	74			
75.8		16	20	33.2	0.801	32	131						17	38	18.4	56	79			
60.9		16	19	41.6	0.681	38	133						17	37	28.5	48	70			
49.2		16	13	47.6	0.584	40	129						17	29	05.6	42	69			
54.2		16	16	41.5	0.626	39	131						17	33	18.9	45	69			
66.6		16	24	56.5	0.727	38	136						17	43	41.9	51	68			
50.8		16	13	15.0	0.597	39	128						17	28	43.0	43	71			
69.5		16	08	49.7	0.751	29	123						17	24	05.9	54	87			
65.6		16	10	35.1	0.720	32	125						17	26	32.3	52	83			
65.5		16	10	38.0	0.719	32	125						17	26	35.8	52	83			
66.9		16	23	59.7	0.729	37	135						17	42	38.0	51	69			
56.2		16	23	20.9	0.642	41	136						17	41	12.3	45	62			
57.8		16	23	00.6	0.655	40	135						17	41	00.4	46	64			
54.8		16	12	48.1	0.631	37	128						17	28	44.3	45	74			
71.9		16	18	06.8	0.770	33	130						17	35	39.4	54	79			
64.0		16	28	43.5	0.706	40	140						17	47	48.3	49	62			
56.9		16	25	41.5	0.648	41	138						17	43	53.9	45	60			
65.7		16	17	06.7	0.720	35	130						17	34	35.8	51	76			
59.2		16	17	14.7	0.667	38	131						17	34	29.3	47	71			
65.9		16	30	34.4	0.722	39	141						17	49	52.6	50	62			
63.7		16	22	34.9	0.704	38	135						17	40	56.8	49	68			
70.6		16	23	47.7	0.759	36	135						17	42	22.6	53	72			
93.2		16	16	52.4	0.938	22	124						17	30	24.2	66	95			
91.0		16	15	38.6	0.921	22	124						17	29	24.3	65	95			
92.2		16	16	13.0	0.931	22	124						17	29	49.9	66	95			
63.9		17	19	41.6	0.706	38	185						18	34	30.0	48	27			
68.6		17	19	35.8	0.743	37	184						18	34	35.4	50	31			
67.3		17	20	31.2	0.733	37	185						18	35	16.1	49	30			
60.0		17	05	04.3	0.673	43	173						18	22	20.2	45	30			
54.2		17	08	10.3	0.625	44	177						18	24	11.6	42	24			
57.4		17	06	38.3	0.652	44	175						18	23	21.7	44	27			
59.9		17	01	36.2	0.673	44	169						18	19	21.2	45	32			

LOCAL CIRCUMSTANCES

Geographic Locations	First Contact						Second Contact			
	Latitude	Longitude	Universal Time			P	V	Universal Time		
			h	m	s			h	m	s
WASHINGTON										
Ellensburg	+47 00.0	+120 34.0	15	14	43.6	253	295	16	17	46.4
Ellensburg, <i>Manastash Ridge Obs.</i>	+46 57.1	+120 43.4	15	14	34.6	253	295	16	17	31.4
Ephrata	+47 19.0	+119 32.0	15	15	41.5	253	294			
Billingham	+48 45.0	+122 28.6	15	17	01.6	252	292			
Kelso	+46 08.0	+122 54.0	15	12	25.0	254	297	16	14	02.8
Mt. Rainier	+46 50.0	+121 45.0	15	13	57.8	254	295	16	16	30.0
Olympia	+47 03.0	+122 53.0	15	13	57.9	254	295	16	16	20.9
Pasco	+46 15.0	+119 07.0	15	14	03.4	254	296	16	17	06.3
Pullman	+46 46.0	+117 09.0	15	15	50.2	253	294	16	19	46.1
Richland	+46 17.0	+119 17.0	15	14	02.5	254	296	16	17	02.2
Richland, <i>Rattlesnake Mt. Obs.</i>	+46 23.7	+119 35.7	15	14	05.5	254	296	16	17	00.8
Seattle	+47 36.5	+122 20.2	15	15	06.4	253	294			
South Bend	+46 39.0	+123 48.0	15	12	59.6	254	296	16	14	31.7
Spokane	+47 39.5	+117 25.6	15	17	14.0	253	293			
Tacoma	+47 16.0	+122 30.0	15	14	27.9	253	295			
Walla Walla	+46 05.0	+118 18.0	15	14	08.2	254	296	16	17	28.0
Wenatchee	+47 26.0	+120 20.0	15	15	33.7	253	294			
Yakima	+46 35.7	+120 30.8	15	14	03.6	254	296	16	16	44.5
WEST VIRGINIA										
Charleston	+38 21.0	+ 81 37.9	15	42	37.5	265	293			
Green Bank, <i>Nat. Radio Astron. Obs.</i>	+38 26.3	+ 79 50.2	15	46	06.1	266	292			
Huntington	+38 25.2	+ 82 26.6	15	41	12.1	265	294			
Wheeling	+40 04.1	+ 80 43.3	15	45	58.1	264	289			
WISCONSIN										
Beloit, <i>Thompson Obs., Beloit Coll.</i>	+42 30.3	+ 89 01.9	15	35	17.4	259	290			
Eau Claire	+44 48.8	+ 91 29.7	15	35	05.6	256	287			
Green Bay	+44 30.8	+ 88 00.8	15	39	23.2	257	286			
Kenosha	+42 35.7	+ 87 50.2	15	37	08.8	259	289			
Madison, <i>Washburn Obs., Univ. of Wisc.</i>	+43 04.6	+ 89 24.5	15	35	30.8	258	289			
Milwaukee	+43 02.3	+ 87 54.3	15	37	37.0	259	288			
Racine	+42 43.8	+ 87 47.2	15	37	23.6	259	289			
Sheboygan	+43 45.6	+ 87 44.9	15	38	46.7	258	287			
Williams Bay, <i>Yerkes Obs., Univ. of Chicago</i>	+42 34.2	+ 88 33.4	15	36	03.6	259	290			
WYOMING										
Cheyenne	+41 08.2	+104 49.1	15	14	56.6	258	300			
Sheridan	+44 47.8	+106 57.7	15	18	59.0	255	294			
ALBERTA										
Calgary	+51 02.8	+114 03.4	15	24	56.9	250	286			
Edmonton	+53 32.8	+113 29.3	15	29	44.5	248	281			
Lethbridge	+49 41.5	+112 49.0	15	23	16.6	251	287			
BRITISH COLUMBIA										
Penticton, <i>Dominion Radio Astrophys. Obs.</i>	+49 19.3	+119 37.1	15	19	08.3	252	290			
Prince Rupert	+54 19.0	+130 19.0	..	..	..	..	..			
Vancouver	+49 16.5	+123 07.5	15	17	43.0	252	291			
Victoria	+48 25.7	+123 21.8	15	16	10.0	253	293			
Victoria, <i>Dominion Astrophys. Obs.</i>	+48 31.3	+123 25.0	15	16	18.5	253	293			
MANITOBA										
Bissett	+50 58.0	+ 95 10.0	15	39	57.2	251	279	16	50	41.8
Brandon	+49 51.0	+ 99 57.0	15	33	26.5	251	282	16	42	56.0
Churchill	+58 45.3	+ 94 10.0	15	52	36.6	247	267			
Dauphin	+51 09.0	+100 05.0	15	35	26.4	250	280	16	45	09.3
Delta Beach	+50 11.0	+ 98 20.0	15	35	31.7	251	281	16	45	26.8
Flin Flon	+54 47.0	+101 53.0	15	39	53.2	248	275			
Grand Beach	+50 34.0	+ 96 38.0	15	37	49.7	251	280	16	48	12.1
Killarney	+49 12.0	+ 99 40.0	15	32	39.2	252	283	16	42	33.7
McCreary	+50 46.0	+ 99 30.0	15	35	21.3	251	281	16	44	53.8
Morris	+49 22.0	+ 97 21.0	15	35	12.5	252	282	16	46	28.8
Ninette	+49 24.0	+ 99 40.0	15	32	58.7	252	283	16	42	45.5
The Pas	+53 50.0	+101 15.0	15	38	50.0	249	277			
Portage la Prairie	+49 58.0	+ 98 20.0	15	35	10.9	251	282	16	45	12.4
Russell	+50 47.0	+101 17.0	15	33	45.3	251	281	16	43	18.7
St. Claude	+49 40.0	+ 98 20.0	15	34	42.1	252	282	16	44	55.4

LOCAL CIRCUMSTANCES

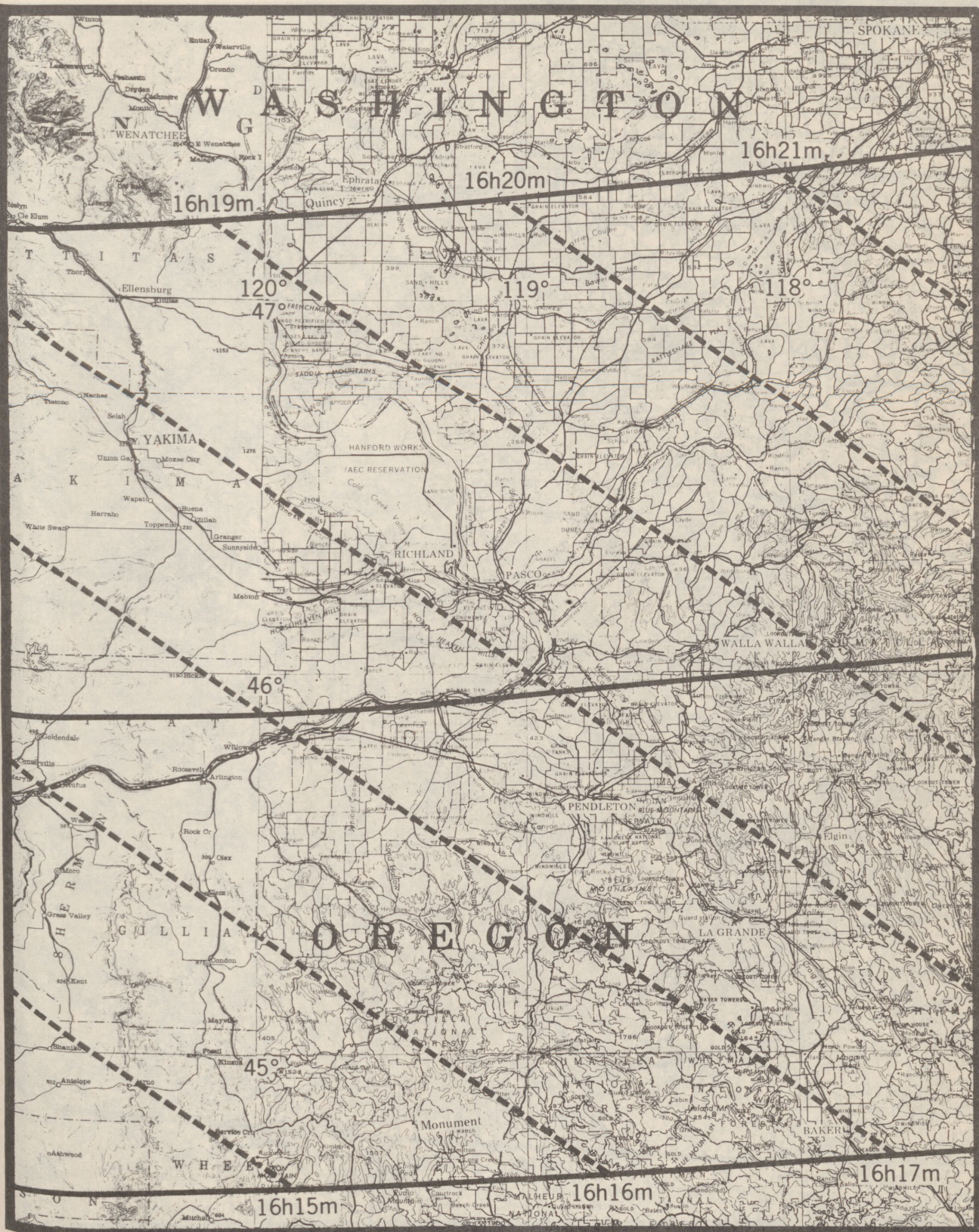
Obscuration	Maximum Eclipse			Sun's Alt.	Sun's Az.	Third Contact			P	V	Fourth Contact			Duration	Width of Path				
	Universal Time	Magnitude	Universal Time			Universal Time	P	V											
											h	m	s			h	m	s	h	m	s
%	h	m	s			h	m	s	o	o	h	m	s	o	o	m	s	mi	
100.0	16	18	21.7	1.036	14	119	16	18	56.9	314	351	17	27	24.1	73	103	1	10.5	179
100.0	16	18	09.2	1.036	13	119	16	18	46.9	311	349	17	27	08.5	73	103	1	15.5	179
100.0	16	19	42.7	0.998	14	120						17	29	06.1	73	102			
98.0	16	19	53.2	0.978	12	118						17	27	51.4	75	104			
100.0	16	15	09.9	1.036	12	116	16	16	17.0	267	306	17	23	23.6	73	105	2	14.2	173
100.0	16	17	09.1	1.036	13	118	16	17	48.2	310	347	17	25	45.3	73	104	1	18.2	177
100.0	16	16	43.2	1.036	12	117	16	17	05.5	325	3	17	24	49.5	74	105	0	44.6	176
100.0	16	18	16.4	1.037	15	120	16	19	26.6	267	305	17	28	01.9	72	102	2	20.3	179
100.0	16	20	48.5	1.037	16	122	16	21	50.9	285	321	17	31	15.1	72	100	2	04.8	183
100.0	16	18	11.5	1.037	15	120	16	19	20.9	269	306	17	27	52.5	72	102	2	18.7	179
100.0	16	18	07.1	1.037	14	120	16	19	13.4	276	313	17	27	39.4	73	102	2	12.6	179
99.6	16	18	03.4	0.993	12	118						17	26	17.3	74	104			
100.0	16	15	24.2	1.036	11	116	16	16	16.7	294	332	17	23	11.9	73	106	1	45.0	174
99.8	16	22	02.7	0.996	16	123						17	32	10.8	73	100			
99.9	16	17	21.6	0.998	12	117						17	25	35.1	74	104			
100.0	16	18	40.9	1.037	15	121	16	19	53.7	258	295	17	28	48.0	72	101	2	25.7	180
99.8	16	19	16.3	0.996	14	120						17	28	19.4	74	103			
100.0	16	17	43.5	1.036	14	119	16	18	42.5	287	325	17	26	51.4	73	103	1	58.0	178
64.6	16	59	34.3	0.711	42	167						18	17	57.7	48	37			
62.6	17	03	00.7	0.695	42	170						18	20	49.3	46	34			
65.7	16	58	08.3	0.720	42	165						18	16	45.7	48	39			
67.5	17	03	00.6	0.735	41	169						18	21	05.3	49	38			
82.0	16	51	09.0	0.849	36	156						18	10	03.0	57	57			
88.9	16	49	55.3	0.904	33	154						18	08	01.7	61	63			
85.2	16	55	06.7	0.874	35	159						18	13	22.3	59	57			
81.0	16	53	15.0	0.842	36	158						18	12	05.2	57	55			
83.5	16	51	12.0	0.862	35	156						18	09	56.5	58	58			
82.0	16	53	38.4	0.850	36	158						18	12	21.5	57	55			
81.3	16	53	29.2	0.844	36	158						18	12	17.2	57	55			
83.4	16	54	42.5	0.860	35	159						18	13	12.3	58	56			
81.7	16	52	01.0	0.847	36	157						18	10	53.3	57	56			
90.5	16	25	20.4	0.917	27	132						17	41	42.8	64	85			
98.3	16	28	15.7	0.980	24	132						17	43	01.7	68	88			
95.8	16	30	37.7	0.960	17	128						17	40	59.1	75	96			
92.7	16	35	09.6	0.934	16	130						17	44	47.3	76	95			
98.0	16	29	37.0	0.978	18	129						17	40	50.5	73	95			
97.4	16	23	00.4	0.972	14	121						17	31	55.4	75	102			
90.2	16	24	47.2	0.915	6	114						17	28	57.8	79	107			
97.2	16	20	19.2	0.971	11	118						17	27	56.7	75	104			
98.5	16	18	43.0	0.982	11	117						17	26	24.5	75	105			
98.3	16	18	50.2	0.981	11	117						17	26	29.5	75	105			
100.0	16	51	58.1	1.040	26	152	16	53	14.5	221	238	18	06	59.4	68	73	2	32.7	190
100.0	16	44	21.4	1.040	25	145	16	45	46.7	251	273	17	59	07.4	69	79	2	50.7	193
94.9	17	01	37.7	0.952	20	157						18	12	28.8	73	76			
100.0	16	45	55.5	1.039	24	145	16	46	41.7	307	328	18	00	02.9	70	80	1	32.4	193
100.0	16	46	51.8	1.040	26	147	16	48	16.9	241	262	18	01	47.2	69	77	2	50.1	193
95.4	16	48	37.4	0.956	21	145						18	00	34.4	73	83			
100.0	16	49	33.5	1.040	26	149	16	50	54.9	230	249	18	04	34.5	68	75	2	42.8	191
100.0	16	43	50.6	1.040	26	145	16	45	07.6	223	246	17	58	58.1	69	79	2	33.9	193
100.0	16	46	08.6	1.040	25	146	16	47	23.3	278	300	18	00	34.0	70	79	2	29.5	193
100.0	16	47	06.1	1.040	27	148	16	47	43.3	185	206	18	02	34.8	68	75	1	14.5	193
100.0	16	44	06.8	1.040	26	145	16	45	28.0	231	253	17	59	08.6	69	79	2	42.5	193
96.9	16	48	05.0	0.968	22	145						18	00	38.5	73	82			
100.0	16	46	35.0	1.040	26	147	16	47	57.5	233	254	18	01	36.5	69	77	2	45.1	193
100.0	16	43	57.7	1.039	24	143	16	44	36.7	313	335	17	58	00.7	70	81	1	18.0	193
100.0	16	46	11.6	1.040	26	147	16	47	27.8	222	243	18	01	21.5	68	77	2	32.4	193

LOCAL CIRCUMSTANCES

Geographic Locations	Latitude		Longitude		First Contact			Second Contact		
	°	'	°	'	Universal Time	P	V	Universal Time	P	V
MANITOBA(Cont.)										
Selkirk	+50	10.0	+ 96	52.0	15 36 57.7	251	281	16 47 31.4	102	122
Souris	+49	38.0	+100	17.0	15 32 46.6	251	283	16 42 13.1	73	96
Thompson	+55	45.0	+ 97	52.0	15 44 50.0	248	273			
Victoria Beach	+50	43.0	+ 96	32.0	15 38 09.8	251	280	16 48 29.2	86	105
Winkler	+49	12.0	+ 97	55.0	15 34 22.3	252	283	16 45 24.9	130	152
Winnipeg	+49	53.9	+ 97	08.3	15 36 15.8	252	281	16 46 55.6	109	129
Winnipeg Beach	+50	30.0	+ 97	00.0	15 37 21.1	251	280	16 47 37.0	87	107
NEW BRUNSWICK										
Fredericton	+45	57.0	+ 66	38.5	16 16 25.2	264	269			
Moncton	+46	05.5	+ 64	47.5	16 19 54.4	265	268			
Saint John	+45	16.0	+ 66	04.5	16 17 16.3	265	270			
NEWFOUNDLAND										
St. Johns	+47	34.0	+ 52	43.5	16 41 54.8	270	259			
NOVA SCOTIA										
Halifax	+44	38.6	+ 63	34.6	16 21 59.8	267	268			
Sydney	+46	08.5	+ 60	11.0	16 28 35.6	268	264			
ONTARIO										
Belleville	+44	09.5	+ 77	22.5	15 55 48.4	261	280			
Kingston	+44	15.0	+ 76	38.0	15 57 11.1	261	279			
Lake Traverse, Algonquin Radio Obs., NRC	+45	57.3	+ 78	04.4	15 56 17.5	259	277			
London	+42	59.0	+ 81	15.0	15 48 00.6	261	284			
North Bay	+46	18.5	+ 79	27.5	15 54 24.1	258	278			
Ottawa	+45	25.7	+ 75	42.8	15 59 47.4	261	276			
Ottawa, Ottawa River Solar Obs.	+45	23.2	+ 75	53.6	15 59 26.8	261	277			
Peterborough	+44	18.0	+ 78	19.5	15 54 17.8	261	280			
Richmond Hill, David Dunlap Obs.	+43	51.8	+ 79	25.3	15 52 00.2	261	282			
Red Lake	+50	59.0	+ 93	40.0	15 41 34.1	251	278	16 53 16.7	131	147
Sault Ste. Marie	+46	31.5	+ 84	20.0	15 47 13.0	257	280			
Sudbury	+46	28.5	+ 80	58.5	15 52 11.9	258	278			
Thunder Bay	+48	25.0	+ 89	14.0	15 43 02.0	254	280			
Toronto, Meteorological Obs.	+43	40.0	+ 79	23.9	15 51 50.9	261	282			
Winisk	+55	20.0	+ 85	15.0	15 56 51.5	251	268	17 08 10.6	120	128
PRINCE EDWARD ISLAND										
Charlottetown	+46	14.0	+ 63	07.8	16 23 02.5	266	266			
QUEBEC										
Montreal, McGill Univ. Obs.	+45	30.3	+ 73	34.7	16 03 34.6	261	275			
Quebec, Quebec Obs., Plains of Abraham	+46	48.0	+ 71	13.2	16 08 35.0	261	271			
Sherbrooke	+45	24.0	+ 71	53.5	16 06 31.0	262	274			
Trois-Rivieres	+46	21.0	+ 72	33.0	16 05 58.5	261	273			
SASKATCHEWAN										
Bengough	+49	25.0	+105	10.0	15 28 10.0	251	285	16 36 36.8	15	42
Estevan	+49	09.0	+103	00.0	15 29 31.7	252	285	16 38 13.6	57	82
Moose Jaw	+50	23.5	+105	32.5	15 29 31.9	251	284			
Regina	+50	27.0	+104	36.5	15 30 22.4	251	283			
Rockglen	+49	11.0	+105	57.0	15 27 08.9	251	286	16 35 20.6	16	44
Saskatoon	+52	07.8	+106	39.7	15 31 40.2	249	281			
Stoughton	+49	40.0	+103	01.0	15 30 22.7	251	284	16 39 09.2	36	61
Weyburn	+49	39.0	+103	51.0	15 29 38.6	251	284	16 38 19.1	25	50
Whitewood	+50	19.0	+102	16.0	15 32 06.8	251	283	16 41 18.7	16	40
OTHER COUNTRIES										
Tacubaya, Mexico, Nat. Obs. (Mex. City)	+19	24.3	+ 99	11.7	15 00 17.8	286	349			
Tonantzintla, Mexico, Nat. Astrophys. Obs.	+19	02.0	+ 98	18.8	15 01 28.3	287	350			
San Juan, Puerto Rico	+18	27.0	+ 66	04.3	16 43 25.2	315	312			
Guatemala, Guatemala	+14	37.0	+ 90	31.0	15 17 07.0	297	0			
Managua, Nicaragua	+12	10.0	+ 86	16.0	15 31 56.3	306	6			
Cardiff, Wales	+51	30.0	+ 3	10.0	17 31 47.0	289	251			
Dublin, Ireland, Dunsink Obs.	+53	23.2	+ 6	20.3	17 26 25.3	284	249			
Glasgow, Scotland	+55	50.0	+ 4	15.0	17 22 25.7	281	248			
Jodrell Bank, England, Nuffield Radio Lab.	+53	14.2	+ 2	18.4	17 28 23.2	286	250			
Lisbon, Portugal, Obs. of Faculty of Sci.	+38	43.1	+ 9	08.9	18 09 24.4	323	273			
Reykjavik, Iceland	+64	04.0	+ 21	58.0	16 59 47.0	265	245			

LOCAL CIRCUMSTANCES

Obscuration	Maximum Eclipse			Magnitude	Sun's		Third Contact			Fourth Contact			Duration		Width of				
	Universal Time				Alt.	Az.	Universal Time			P	V	Universal Time			P	V	m	s	mi
	%	h	m				s	h	m			s	h	m						s
100.0	16	48	45.2	1.040	26	149	16	49	59.0	218	237	18	03	55.8	68	75	2	27.6	192
100.0	16	43	38.5	1.040	25	144	16	45	03.8	248	270	17	58	26.2	69	80	2	50.7	194
96.3	16	54	18.4	0.963	22	151						18	06	25.2	73	79			
100.0	16	49	52.4	1.040	26	150	16	51	15.7	234	252	18	04	49.9	69	75	2	46.5	191
100.0	16	46	08.0	1.040	27	147	16	46	51.2	190	211	18	01	35.6	68	76	1	26.3	193
100.0	16	48	03.5	1.040	26	148	16	49	11.4	211	231	18	03	19.3	68	75	2	15.8	192
100.0	16	48	59.8	1.040	26	149	16	50	22.6	233	252	18	03	59.3	69	75	2	45.6	192
64.0	17	30	44.3	0.706	34	195						18	42	40.7	48	24			
62.1	17	33	34.7	0.691	34	198						18	44	35.0	47	22			
61.6	17	31	23.8	0.687	35	196						18	43	01.5	47	22			
51.7	17	50	05.2	0.605	27	216						18	54	31.9	43	11			
57.0	17	35	04.1	0.649	35	200						18	45	14.5	45	17			
56.6	17	40	19.0	0.646	32	205						18	48	47.0	45	16			
72.9	17	12	26.6	0.778	37	177						18	28	58.7	52	38			
72.2	17	13	45.4	0.772	37	178						18	30	02.3	52	36			
77.7	17	12	37.3	0.815	35	176						18	28	57.2	55	41			
74.8	17	04	52.0	0.793	38	170						18	22	41.4	53	43			
80.0	17	10	39.1	0.834	35	174						18	27	13.3	56	44			
73.8	17	16	05.4	0.785	36	180						18	31	51.1	53	37			
73.9	17	15	46.1	0.785	36	180						18	31	35.9	53	37			
74.3	17	10	57.5	0.789	37	175						18	27	45.1	53	39			
74.6	17	08	45.5	0.791	37	173						18	25	56.7	53	41			
100.0	16	53	58.9	1.040	27	154	16	54	41.0	188	204	18	09	10.0	68	71	1	24.3	189
85.6	17	03	03.2	0.878	34	166						18	20	20.7	59	53			
82.0	17	08	21.2	0.849	35	171						18	25	10.7	57	47			
93.6	16	57	25.3	0.941	31	159						18	14	07.7	63	62			
74.2	17	08	37.9	0.788	37	173						18	25	51.1	53	40			
100.0	17	09	03.9	1.040	25	168	17	09	57.2	198	205	18	22	13.8	68	63	1	46.6	177
60.4	17	36	04.4	0.677	33	201						18	46	12.5	47	20			
71.4	17	19	36.2	0.766	36	184						18	34	36.3	52	33			
71.5	17	23	59.9	0.767	34	188						18	37	54.2	52	32			
69.1	17	22	15.9	0.747	36	187						18	36	37.3	50	31			
72.1	17	21	42.2	0.771	35	186						18	36	11.2	52	33			
100.0	16	37	22.9	1.039	23	138	16	38	09.1	307	333	17	51	04.7	71	86	1	32.3	195
100.0	16	39	35.0	1.039	24	140	16	40	56.5	265	290	17	53	57.8	70	83	2	42.9	194
99.3	16	38	23.2	0.990	22	138						17	51	34.3	72	87			
99.6	16	39	32.5	0.992	22	139						17	52	57.0	71	85			
100.0	16	36	07.7	1.039	22	136	16	36	54.7	306	333	17	49	41.9	71	87	1	34.1	194
96.7	16	39	42.5	0.966	20	137						17	51	50.4	73	88			
100.0	16	40	18.0	1.039	24	140	16	41	26.8	285	310	17	54	27.2	70	83	2	17.6	194
100.0	16	39	16.6	1.039	23	139	16	40	14.0	297	322	17	53	13.6	71	84	1	54.9	195
100.0	16	42	07.4	1.039	24	142	16	42	56.2	305	329	17	56	10.1	71	82	1	37.5	194
32.7	16	01	59.8	0.437	40	120						17	09	49.1	33	74			
31.2	16	02	55.1	0.423	41	121						17	10	19.3	32	72			
1.1	17	09	30.8	0.043	62	197						17	35	26.4	348	321			
15.0	16	10	48.4	0.254	51	125						17	08	05.6	17	53			
6.8	16	15	50.3	0.148	57	128						17	01	41.0	6	40			
...	..	..	..	..	..	..						..	..	..	..	..			
...	..	..	..	..	..	..						..	..	..	..	..			
...	..	..	..	..	..	..						..	..	..	..	..			
...	..	..	..	..	..	..						..	..	..	..	..			
...	..	..	..	..	..	..						..	..	..	..	..			
...	..	..	..	..	..	..						..	..	..	..	..			
71.4	17	59	19.1	0.767	3	243						..	..	..	..	..			

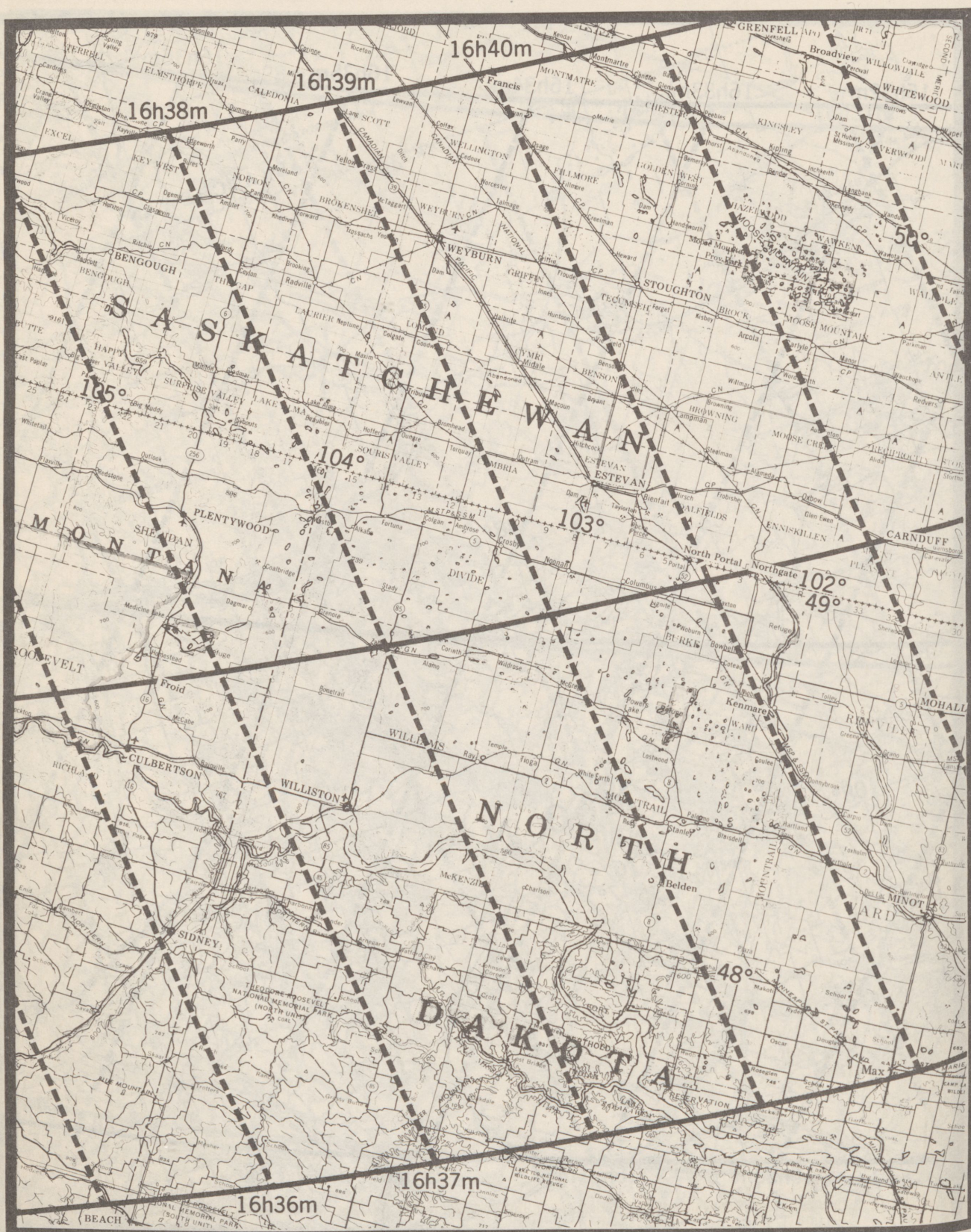




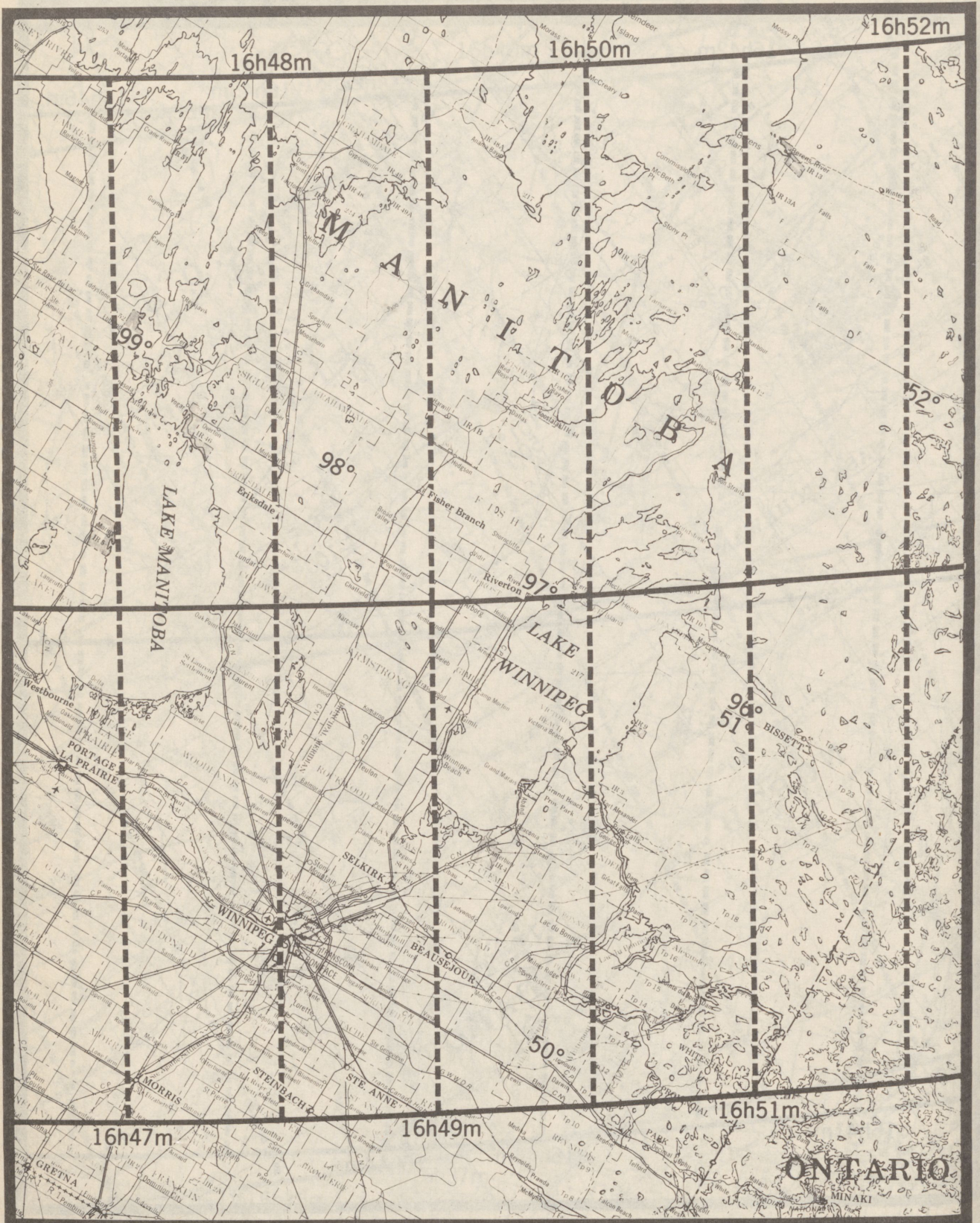




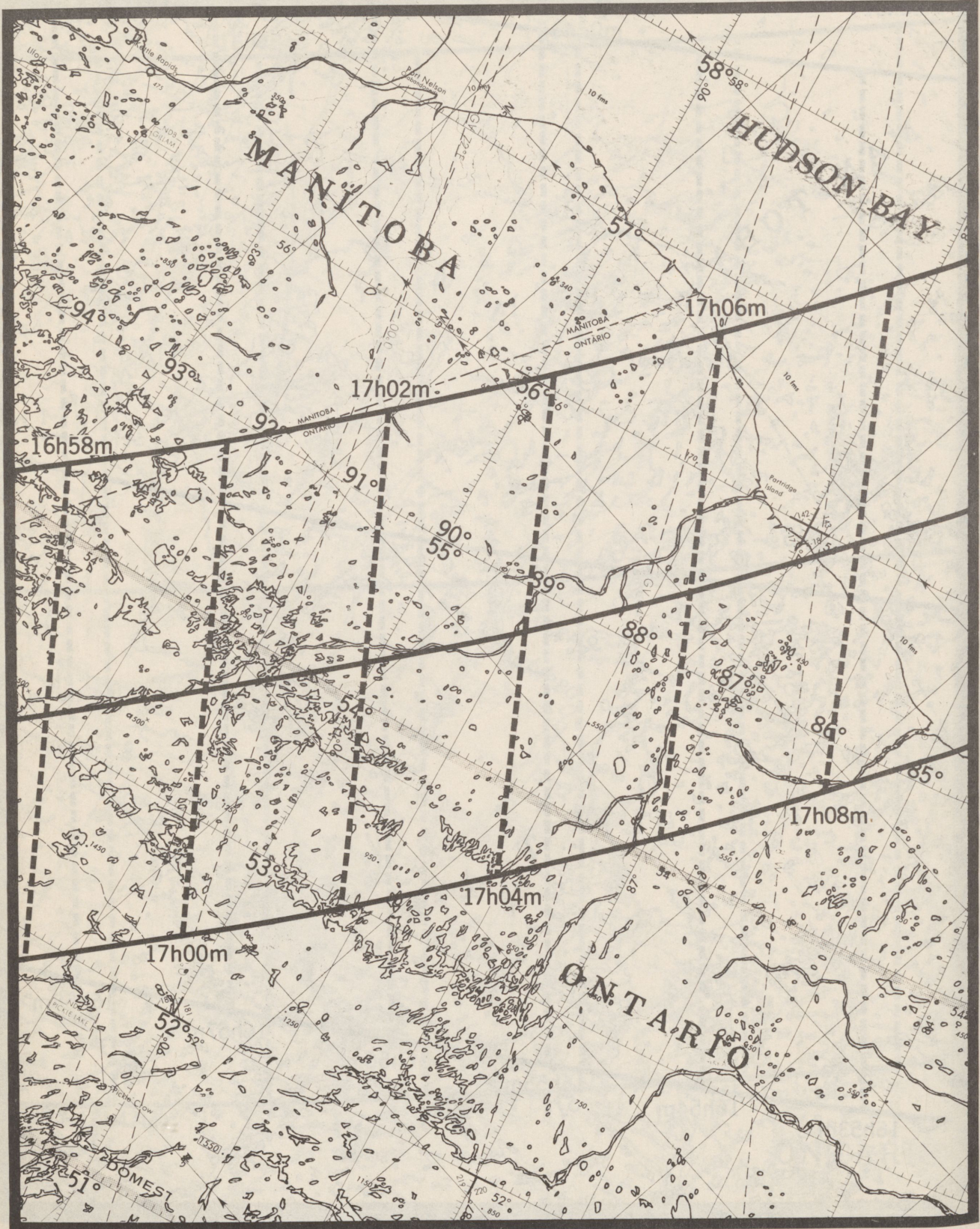


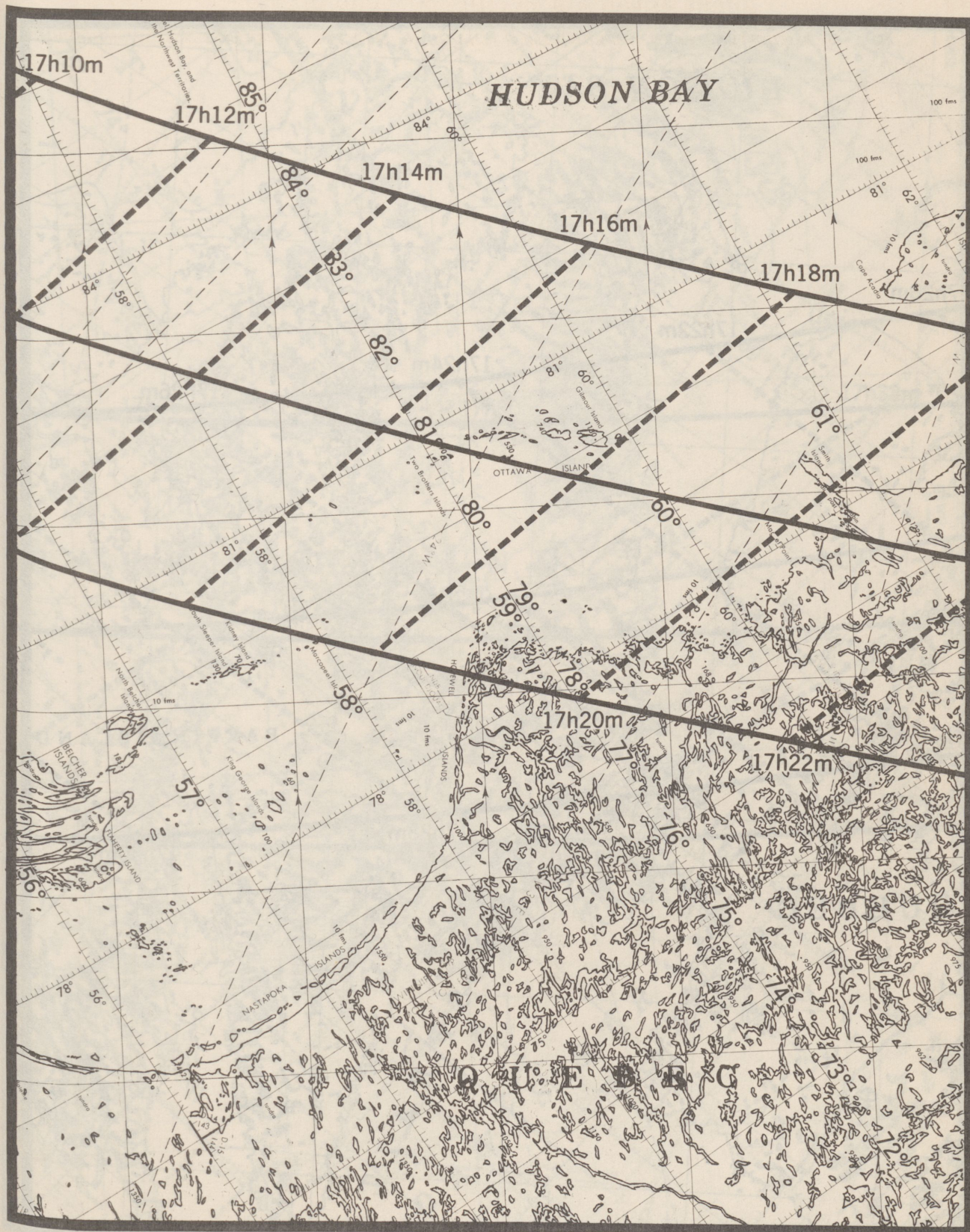


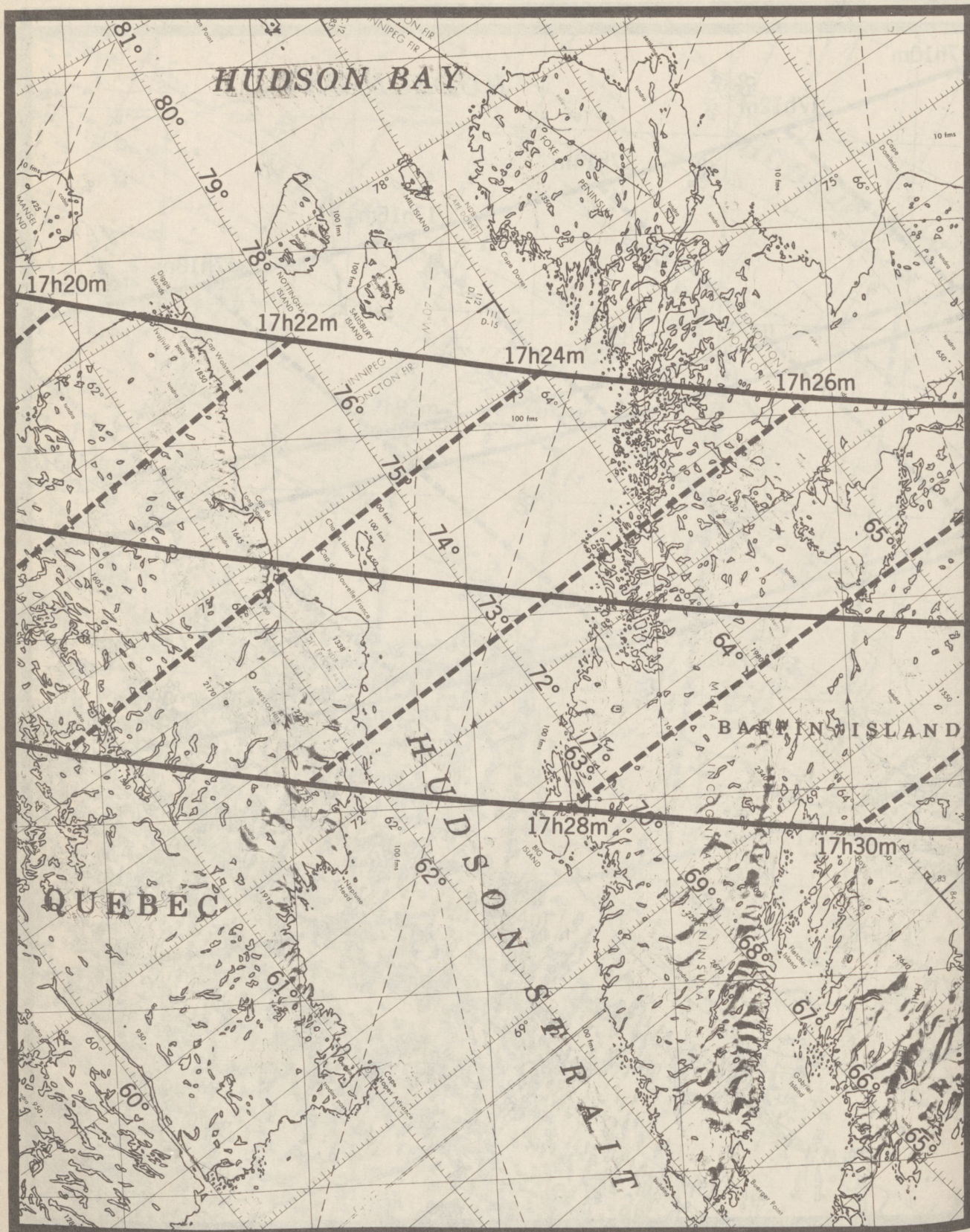


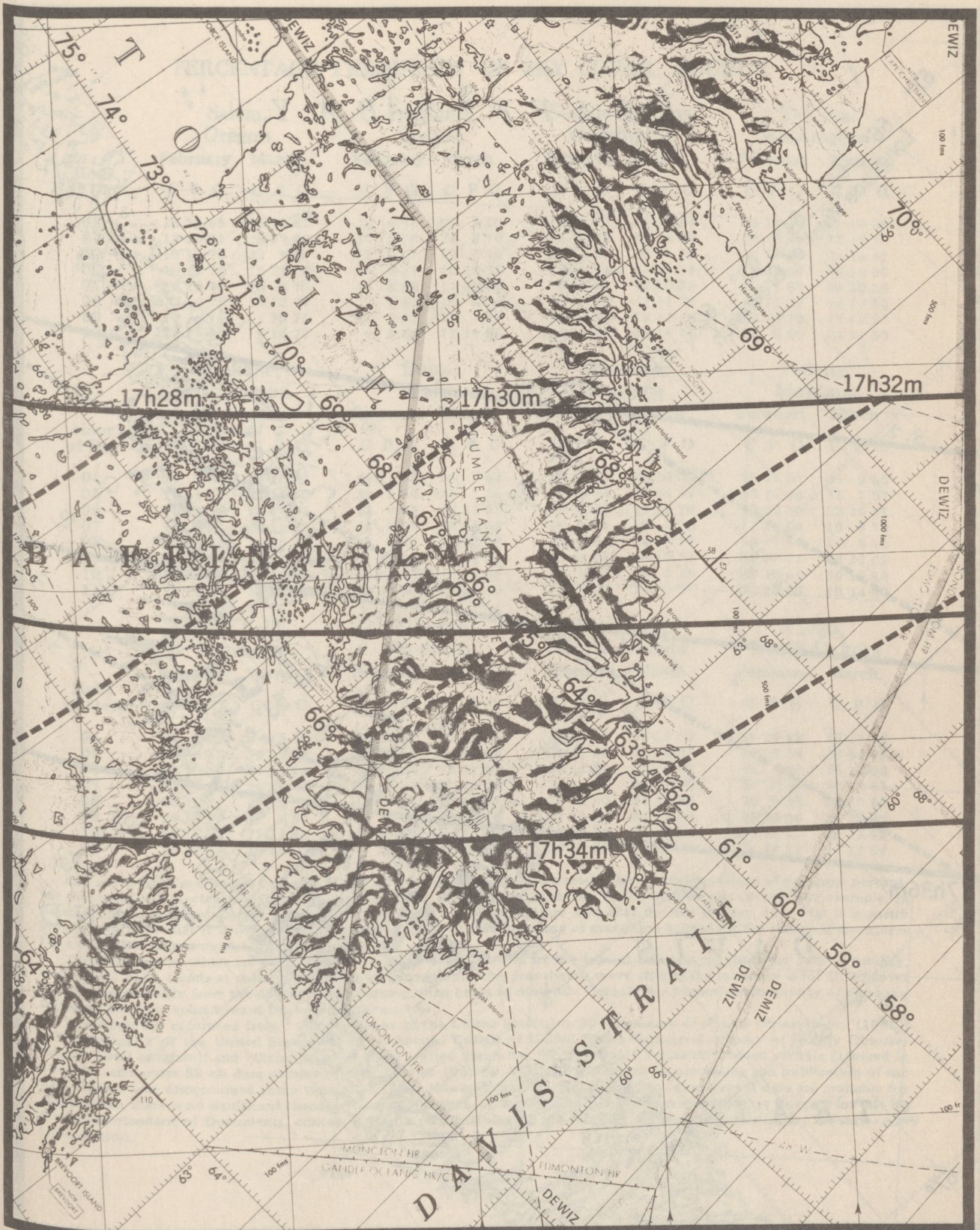


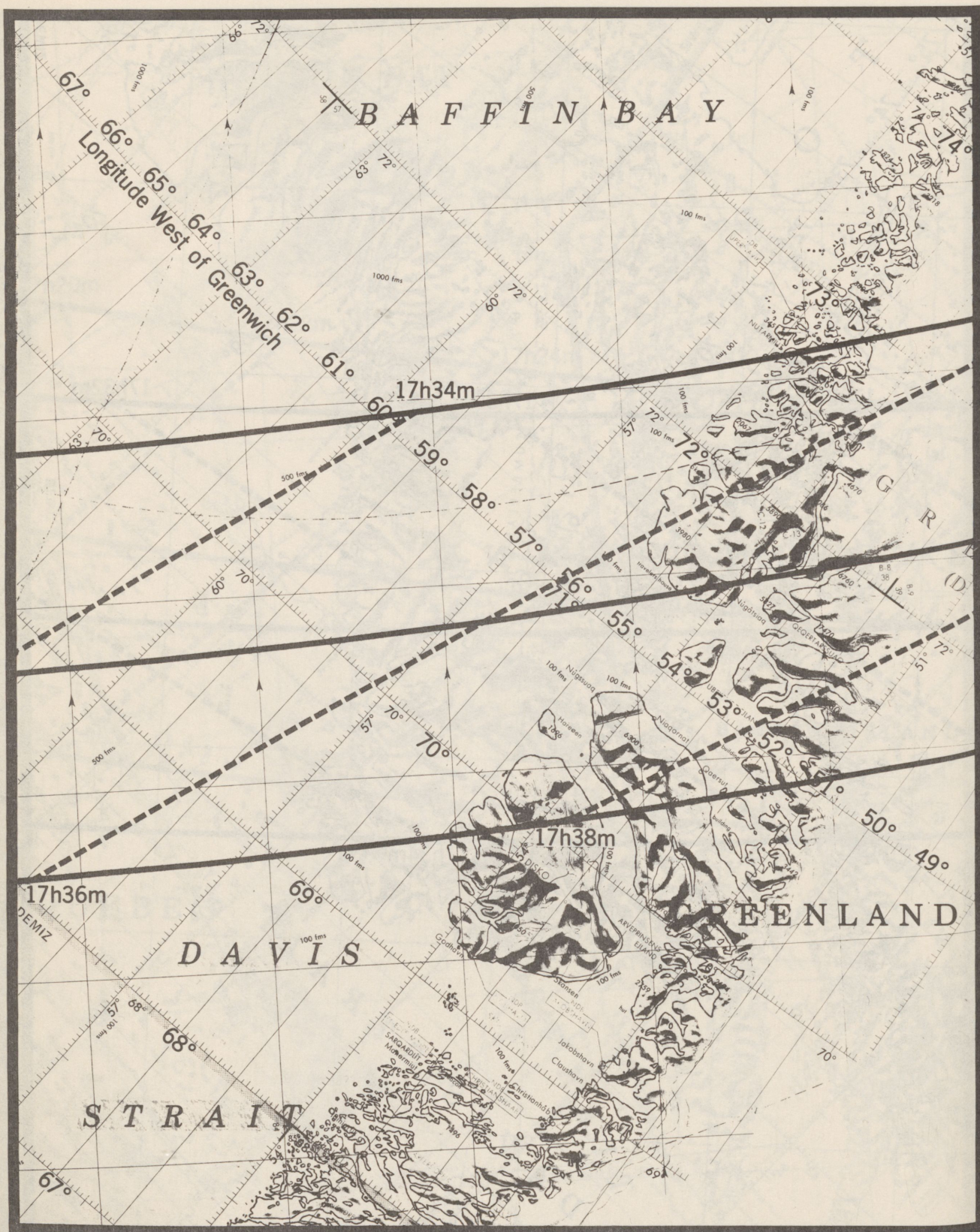












PERCENTAGE FREQUENCY OF SKY COVER, HOURLY

Hour of Day	Salem, Oregon		Portland, Oregon		Seattle-Tacoma, Washington		Yakima, Washington	
	February	March	February	March	February	March	February	March
	C P O	C P O	C P O	C P O	C P O	C P O	C P O	C P O
03	16 15 69	26 13 61	16 8 76	21 8 70	15 8 77	25 11 64	35 12 53	51 10 39
04	13 15 71	20 17 63	17 5 78	21 9 70	14 12 73	24 8 68	39 13 48	51 12 37
05	14 11 75	22 9 69	17 5 77	19 9 72	11 13 75	19 11 70	36 15 49	46 14 41
06	13 12 75	15 12 74	15 8 77	16 10 73	13 13 74	13 13 74	29 15 56	37 12 50
07	12 13 75	13 9 78	11 8 80	11 6 83	8 11 81	12 10 78	21 11 67	34 10 56
08	15 6 79	10 13 77	11 8 81	10 8 81	8 8 84	11 11 77	16 12 72	34 14 53
09	14 8 78	11 10 79	11 7 82	11 7 81	10 7 83	13 11 76	20 10 70	34 10 57
10	13 11 76	9 14 77	9 8 82	11 10 80	11 9 80	13 14 74	23 8 69	34 11 55

Hour of Day	Spokane, Washington		Boise, Idaho		Missoula, Montana		Helena, Montana	
	February	March	February	March	February	March	February	March
	C P O	C P O	C P O	C P O	C P O	C P O	C P O	C P O
04	24 7 68	36 10 53	32 11 58	39 7 54	16 11 74	23 10 67	28 14 57	35 9 55
05	22 11 67	31 8 60	30 8 62	37 7 56	16 10 74	18 14 68	25 19 56	35 7 57
06	15 12 73	25 14 61	28 8 63	33 12 55	16 11 73	15 12 73	23 22 55	23 16 61
07	15 8 77	23 12 65	26 8 65	28 10 62	16 9 74	16 8 76	17 19 64	19 8 72
08	15 9 76	24 12 64	25 8 67	27 7 66	12 4 84	14 9 77	19 11 70	17 8 75
09	16 7 77	22 12 66	21 10 69	28 12 60	13 3 84	16 10 74	19 10 71	18 13 69
10	18 5 77	20 12 68	22 12 66	26 15 59	13 5 82	16 8 75	18 16 65	20 12 68
11	17 10 72	16 15 69	20 13 66	26 15 60	13 9 77	14 9 77	20 13 67	19 14 66

Hour of Day	Great Falls, Montana		Billings, Montana		Bismarck, North Dakota		Fargo, North Dakota	
	February	March	February	March	February	March	February	March
	C P O	C P O	C P O	C P O	C P O	C P O	C P O	C P O
04	34 8 58	37 13 50	33 11 56	37 14 48	40 10 49	36 10 54	42 10 49	40 11 49
05	33 9 58	34 15 52	33 11 56	34 18 48	39 11 49	34 8 57	43 5 52	38 14 48
06	30 10 60	27 14 59	29 18 53	26 17 57	38 11 51	31 10 59	44 6 50	36 12 52
07	20 13 67	26 10 64	25 13 62	21 17 62	33 11 55	28 12 60	39 10 52	30 9 61
08	20 10 71	24 8 67	18 14 67	23 10 67	27 12 60	23 13 64	36 9 55	30 10 60
09	20 10 69	25 9 66	20 11 69	22 12 66	27 11 62	24 11 65	35 10 54	28 13 59
10	22 10 68	27 11 62	17 18 65	25 11 65	30 12 58	24 12 65	33 11 57	25 13 62
11	22 14 64	28 11 61	17 20 63	22 17 61	30 10 60	25 12 64	34 14 52	25 11 64

Sky cover is judged on a 10-point scale, from 0 for clear to 10 for overcast. The monthly columns above show percentage frequencies collected into three groups: C—Clear (0-3), P—Partly cloudy (4-7), O—Overcast (8-10). For example, in Salem, Oregon, on any day in February, at the sixth hour, chances are 13% that the sky is clear, 12% that it is partly cloudy, and 75% that it is overcast. Percentages in italics bracket the time of maximum eclipse for the station. Percentages for a particular hour may not add up to 100%.

These frequency tables are reproduced here to give a rough idea of the typical cloud cover along the path of totality, and typical daily trends at various points. Thus, for example, one sees that at every station the tendency is for cloud cover to increase gradually from pre-dawn to mid-morning, then begin to diminish. Overall, the percentage frequency of clear sky increases from the coast toward the continental interior.

These data are excerpted from "Climatology of the United States No. 30—Summary of Hourly Observations" (1956); "Climatology of the United States No. 82—Decennial Census of United States Climate—Summary of Hourly Observations" (1960 program); and "Climatology of the United States No. 60" (by state). Series 30 is based on data gathered in 1949-54, and series 82 on data gathered in 1951-60 or 1956-60. The hourly program or processing and publication of the data thereof was discontinued some time after 1960. However, in a few instances where more recent data are available for comparison, there is no significant change. These publications of the Department of Commerce Weather Bureau, for sale by the Superintendent of Documents, contain a wealth of climatological information and weather statistics for the states and various cities.